Microsoft Dynamics CRM® 2011 - 2015 WCF Adapter for Microsoft BizTalk Server® 2010 - 2013R2

User manual

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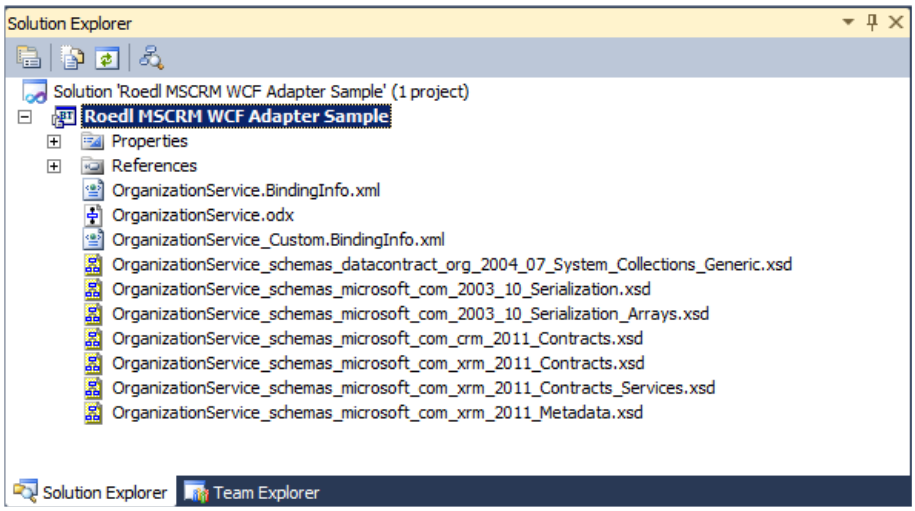
Introduction

Adapter mode of operation

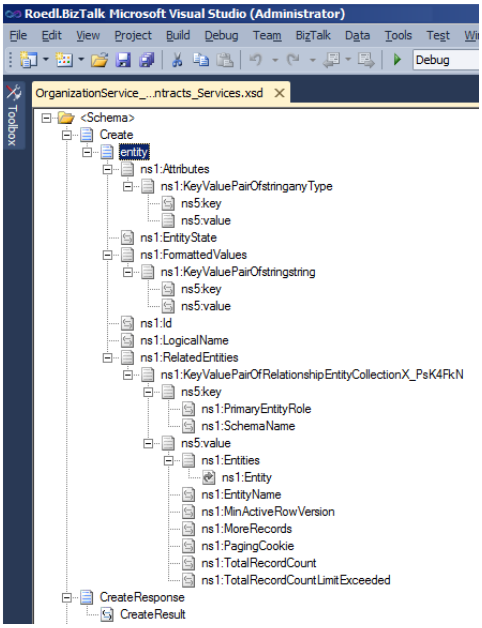
The *R&P MS-CRM WCF Adapter for MS BizTalk* provides a seamless connection between the BizTalk Server 2010 and Microsoft Dynamics CRM 2011. The adapter must be installed on the BizTalk Server. It can be used with Microsoft BizTalk Server 2010.
On the MS CRM server, no further installations are required, because the *R&P MS-CRM WCF Adapter for MS BizTalk* communicates with Microsoft Dynamics CRM 2011 via the original WCF service.
The *R&P MS-CRM WCF Adapter for MS BizTalk* is designed generically. This means that the adapter doesn't contain any explicit functionality for processing individual entities or request methods.
The advantage of this generic approach is that entities and attributes created in MS CRM can be used, too.
No customizing of the MS CRM system needed.

Why an adapter when Microsoft Dynamics CRM provides a WCF interface?

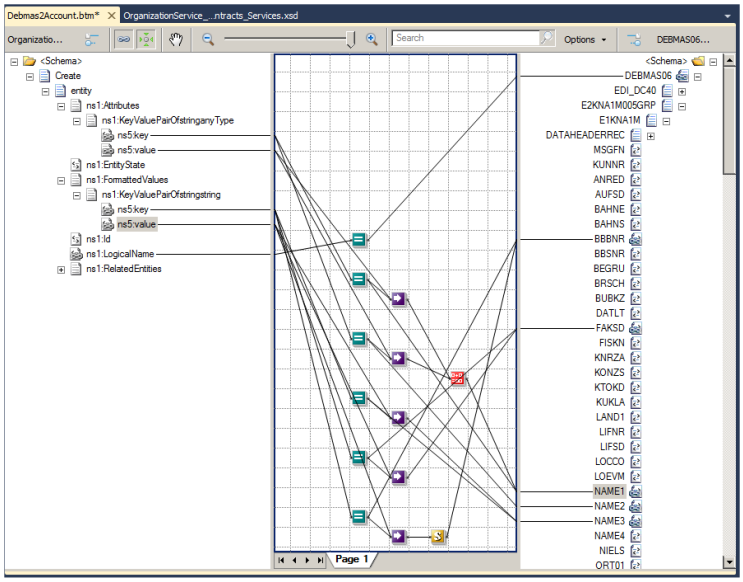
Unlike earlier versions, Microsoft Dynamics CRM 2011 provides a native WCF service you can use directly in the MS BizTalk Server.
But dealing with this service is anything but simple.
If you create a service reference for this WCF service, you will receive the following entries in your BizTalk solution:



Now let's consider the generated schema for the entities in BizTalk Server:



The schema „Create" is completely generic and independent from the several entities. The name of the entity to be created has to be entered in the element „LogicalName". The individual attributes are filled through key/value pairs (e.g. the elements KeyValuePairOfstringstring/key and KeyValuePairOfstringstring/value).
Because of this generic approach, the individual attributes of the several entities do not appear obviously. In managed code, such as .Net assemblies, this approach may be useful. So let's take a look at what is happening when we are trying to map such a schema:



Since the individual attributes of an entity are no longer visible, all content from the key/value pairs have to be extracted. The BizTalk developer needs to know all the attributes and has to enter them into the appropriate functoids.
When reading from the messages it is still practicable. But if you need to fill the messages with the key/value pairs, the complexity increases significantly.
Based on Richard Seroter's blog, who has dealt extensively with the MS CRM WCF service and how to use it in MS BizTalk, we collected some key points:
(more at: http://seroter.wordpress.com/2011/02/10/the-good-bad-and-ugly-of-integrating-dynamics-crm-2011-and-biztalk-server-2010/)

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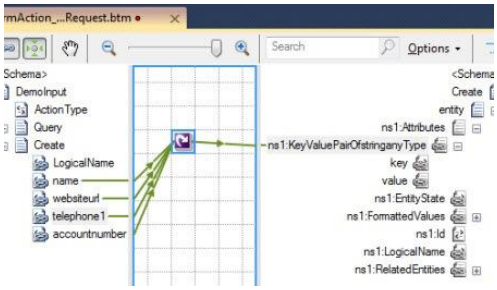
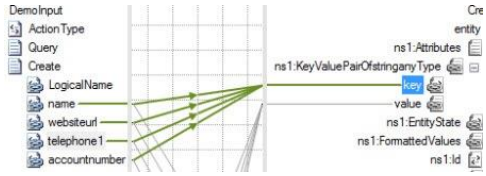
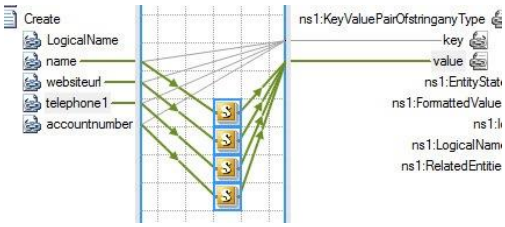
1. First you have to create a loop for each attribute (property of an entity) on the KeyValuePairOfstringanyType node, because a node must be created for each field.



2. Then the fields can be mapped on the key element.



3. When we trying to map the values directly, we will get a serialization exception at runtime, because the data type of the values is “xsd:anytype” and it is impossible to map values of this data type directly to an attribute. So we have to use a script functoid to convert the values to the appropriated data types.



4. The script code looks like this:

```
<xsl:template name="SetNameValue">
<xsl:param name="param1" />
<value xmlns="http://schemas.datacontract.org/2004/07/System.Collections.Generic">
   <xsl:attribute name="xsi:type">
      <xsl:value-of select="'xs:string'" />
   </xsl:attribute>
   <xsl:value-of select="$param1" />
</value>
</xsl:template>
```

This procedure is highly inefficient.
Therefore, the *R&P MS-CRM WCF Adapter for MS BizTalk* works just like the *R&P MS-CRM WS Adapter for MS BizTalk*. Namely, with typed schemas in which the attributes of the several entities are clearly defined and typed as well.

Another important aspect is the complete compatibility of the new adapter with the old adapter. If you are going to switch your BizTalk Server integration from Microsoft Dynamics CRM 3.0 or 4.0 to Microsoft Dynamics CRM 2011, you only need to install the new adapter and switch the ports from the old to the new adapter. The solution will run without any restrictions.

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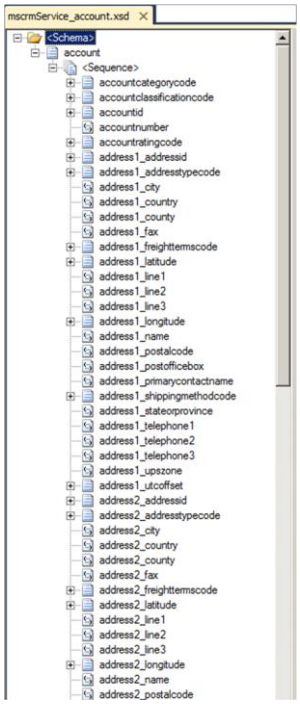
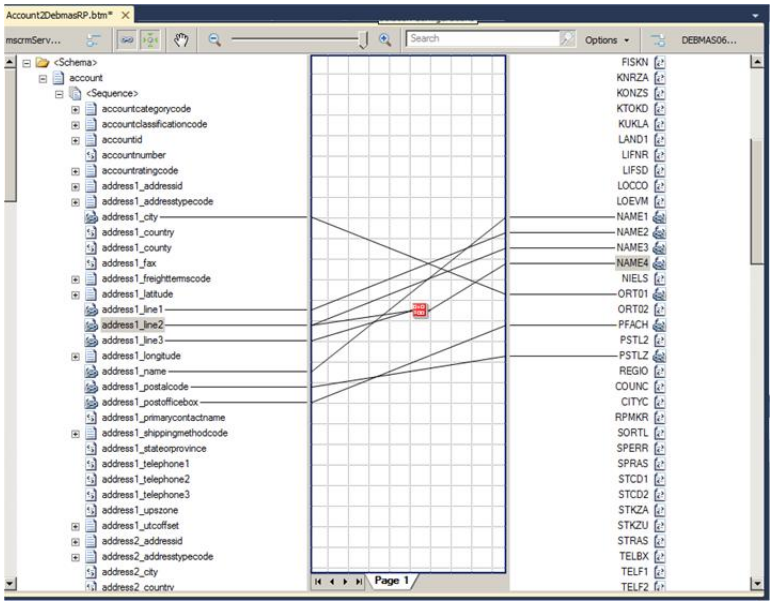
When using the new adapter, a schema of an account may look like this:



Accordingly, the mapping will look like this and not like the mapping created with the original WCF service:



Because the data types of the attributes are determined at designtime, no problems occur during serialization at runtime.
The *R&P MS CRM WCF Adapter for MS BizTalk* will only create the schemas that you actually need.
You can easily add the schemas to your project in Visual Studio in the same way as you have done in our WS adapter. We will discuss this point later in detail.
For each entity a schema will be created which contains only the attributes of the several entities. These individual schemas are well-arranged and fast. Furthermore, the communication with MS CRM has been simplified. There will be no special schemas for request and response required anymore, but everything is focused on the entity you want to work with.

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Example Account:

	Schema for Request	Schema for Response
Insert	**account**	**account**
Update	**account**	**account**
Delete	**account**	**account**
Retrieve	**account**	**account**
Fetch	**fetch**	**accountList**
Upsert	**accountCustomAction**	**account**

Security

The *R&P MS CRM WCF Adapter for MS BizTalk* communicates directly with the original Microsoft Dynamics CRM 2011 WCF service interface.
The same security rules take effect as if you were working with the WCF service itself.

Installation and configuration the Adapter

Installation

With the distribution of the adapter you will receive an executable installation file.
You can choose between the 32bit and the 64bit installation, which depends on the Windows Server you use for your BizTalk integrations.
For installing the adapter, administrative rights are necessary.
After completing the installation, a new binding for the "WCF-Custom" adapter named "xrmBinding" appears. Because the adapter is based on the Microsoft XRM Framework and provides Microsoft Dynamics CRM 2011 functions as well as Microsoft XRM functions, the binding is called "xrmBinding".

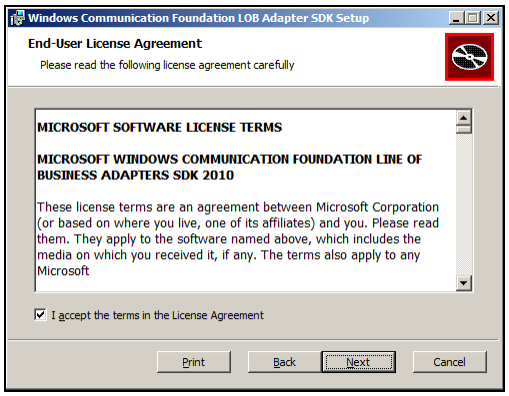
Installation Prerequisites

Installation „LOB Adapter SDK"

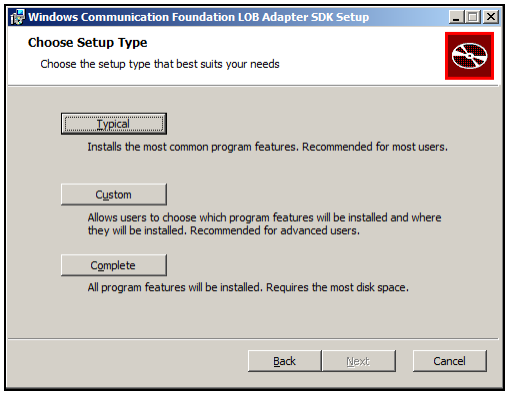
Install the LOB-Adapter SDK for your server architecture (x64/x86). You can find the download here:
http://www.microsoft.com/en-us/download/details.aspx?id=10903 for 2010
http://www.microsoft.com/en-us/download/details.aspx?id=39630 for 2013
After download, run the „AdapterFramework.msi".

Windows Communication Foundation LOB Adapter SDK Setup
Welcome to the Windows Communication Foundation LOB Adapter SDK Setup Wizard
The Setup Wizard allows you to change the way Windows Communication Foundation LOB Adapter SDK features are installed on your computer or to remove it from your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Back
Next
Cancel

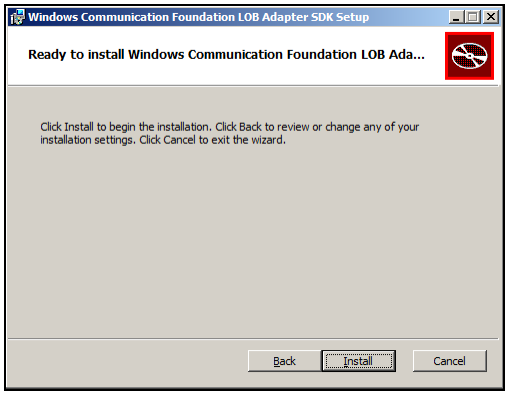
Klick on next.


Windows Communication Foundation LOB Adapter SDK Setup
End-User License Agreement
Please read the following license agreement carefully
MICROSOFT SOFTWARE LICENSE TERMS
MICROSOFT WINDOWS COMMUNICATION FOUNDATION LINE OF BUSINESS ADAPTERS SDK 2010
These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft
I accept the terms in the License Agreement
Print
Back
Next
Cancel

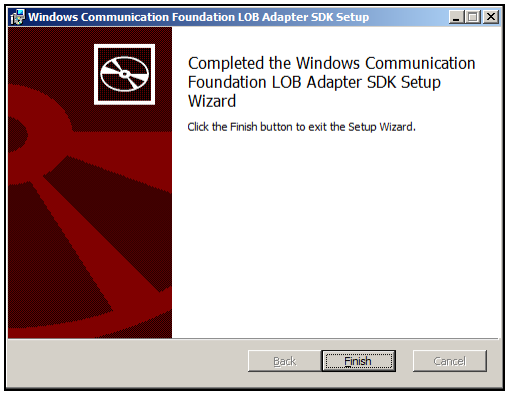
Accept the license terms and click on „Next”.


Windows Communication Foundation LOB Adapter SDK Setup
Choose Setup Type
Choose the setup type that best suits your needs
Typical
Installs the most common program features. Recommended for most users.
Custom
Allows users to choose which program features will be installed and where they will be installed. Recommended for advanced users.
Complete
All program features will be installed. Requires the most disk space.
Back
Next
Cancel

Click on “Typical”.


Windows Communication Foundation LOB Adapter SDK Setup
Ready to install Windows Communication Foundation LOB Ada...
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

Click on “Install”.


Windows Communication Foundation LOB Adapter SDK Setup
Completed the Windows Communication Foundation LOB Adapter SDK Setup Wizard
Click the Finish button to exit the Setup Wizard.
Back
Finish
Cancel

Click on “Finish” to end the installation.

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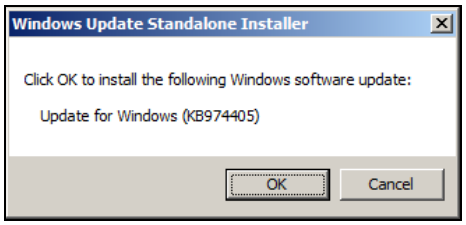
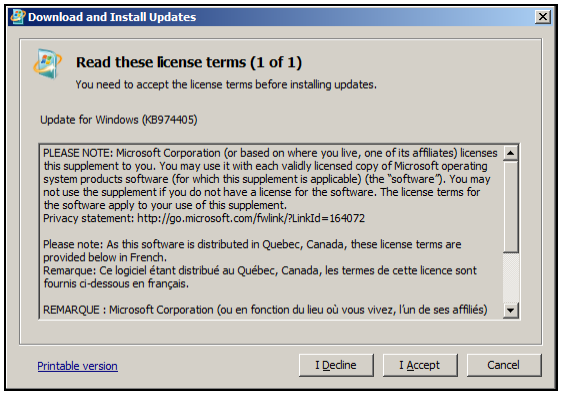
Installation „Windows Identity Foundation“ (KB974405)

Install the Windows Identity Foundation which is suitable for your server platform (6.0/6.1 x64/x86)
You can find the download here: http://support.microsoft.com/kb/974405/de
After the download run the MSU package.



Click on „OK“.


Download and Install Updates
Read these license terms (1 of 1)
You need to accept the license terms before installing updates.
Update for Windows (KB974405)
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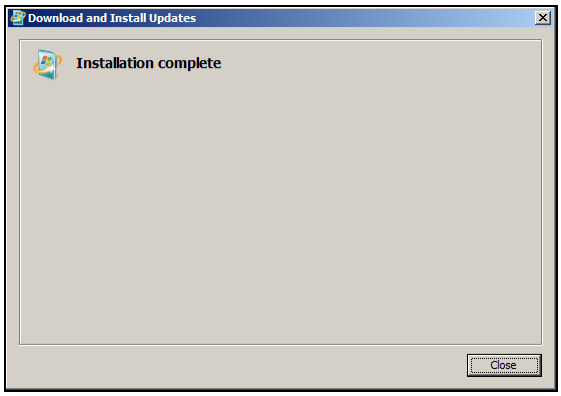
REMARQUE : Microsoft Corporation (ou en fonction du lieu où vous vivez, l'un de ses affiliés)
Printable version
I Decline
I Accept
Cancel

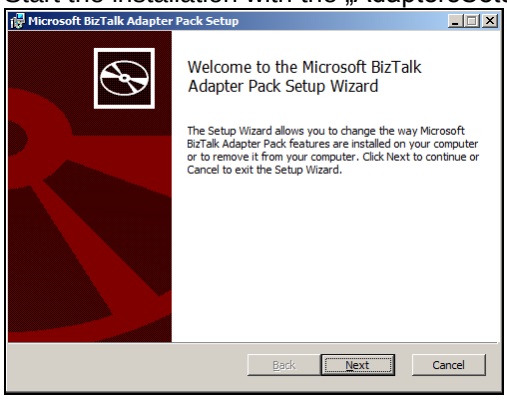
Click on “I Accept”.



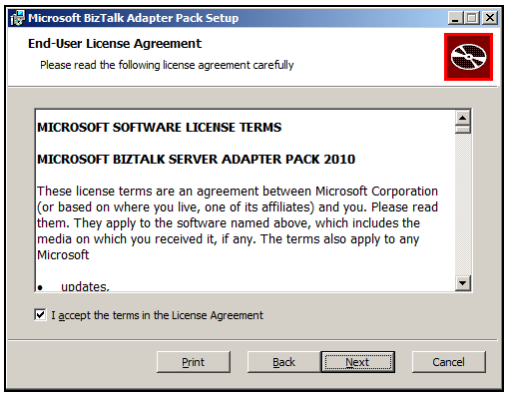
Click on “Close” to finish the installation.

Installation „BizTalk Adapter Pack“

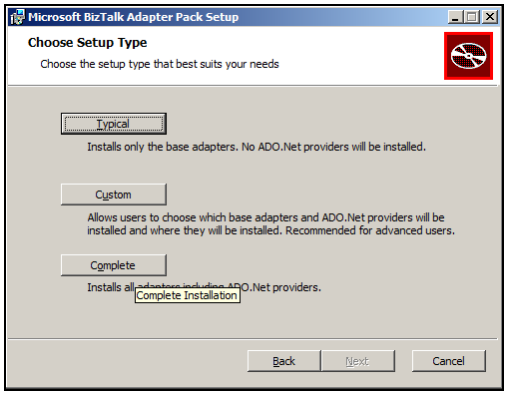
The installation is located on the BizTalk installation medium.
Install the adapter pack which is suitable for your server platform (x64/x86)
<BizTalk installation source>\BizTalk Server\AdapterPack_x86/x64
Start the installation with the „AdaptersSetup.msi“.


Microsoft BizTalk Adapter Pack Setup
Welcome to the Microsoft BizTalk Adapter Pack Setup Wizard
The Setup Wizard allows you to change the way Microsoft BizTalk Adapter Pack features are installed on your computer or to remove it from your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Back
Next
Cancel

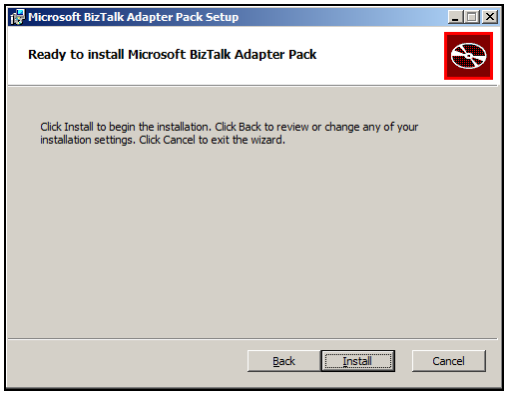
Click on “Next”.


Microsoft BizTalk Adapter Pack Setup
End-User License Agreement
Please read the following license agreement carefully
MICROSOFT SOFTWARE LICENSE TERMS
MICROSOFT BIZTALK SERVER ADAPTER PACK 2010
These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft
updates.
I accept the terms in the License Agreement
Print
Back
Next
Cancel

Accept the license terms and then click on „Next“.


Microsoft BizTalk Adapter Pack Setup
Choose Setup Type
Choose the setup type that best suits your needs
Typical
Installs only the base adapters. No ADO.Net providers will be installed.
Custom
Allows users to choose which base adapters and ADO.Net providers will be installed and where they will be installed. Recommended for advanced users.
Complete
Installs all
ADO.Net providers.
Complete Installation
Back
Next
Cancel

Click on “Complete”.


Microsoft BizTalk Adapter Pack Setup
Ready to install Microsoft BizTalk Adapter Pack
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

Click on “Install”.

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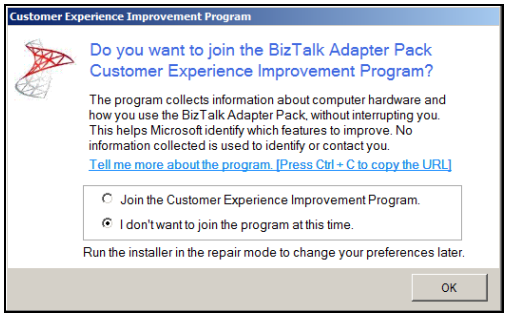
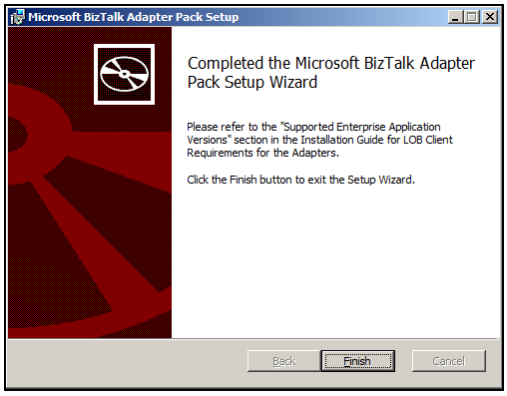

Customer Experience Improvement Program
Do you want to join the BizTalk Adapter Pack Customer Experience Improvement Program?
The program collects information about computer hardware and how you use the BizTalk Adapter Pack, without interrupting you. This helps Microsoft identify which features to improve. No information collected is used to identify or contact you.
Tell me more about the program. [Press Ctrl + C to copy the URL]
Join the Customer Experience Improvement Program.
I don't want to join the program at this time.
Run the installer in the repair mode to change your preferences later.
OK

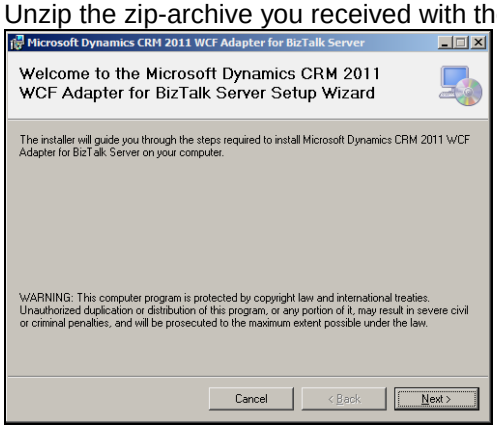
Click on “OK”.


Microsoft BizTalk Adapter Pack Setup
Completed the Microsoft BizTalk Adapter Pack Setup Wizard
Please refer to the "Supported Enterprise Application Versions" section in the Installation Guide for LOB Client Requirements for the Adapters.
Click the Finish button to exit the Setup Wizard.
Back
Finish
Cancel

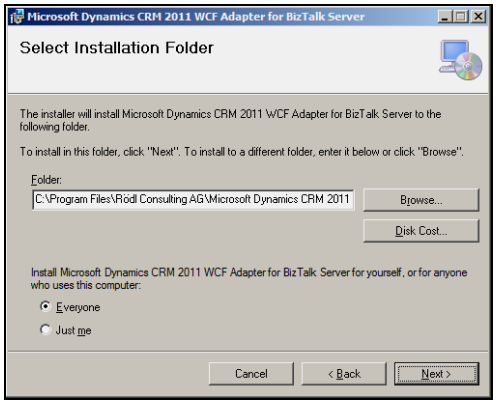
Click on “Finish” to complete the installation.

Installation Roedl Adapter

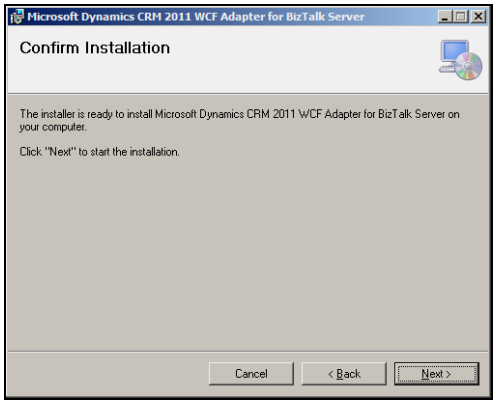
Unzip the zip-archive you received with the order and run the Setup.exe


Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server
Welcome to the Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server Setup Wizard
The installer will guide you through the steps required to install Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

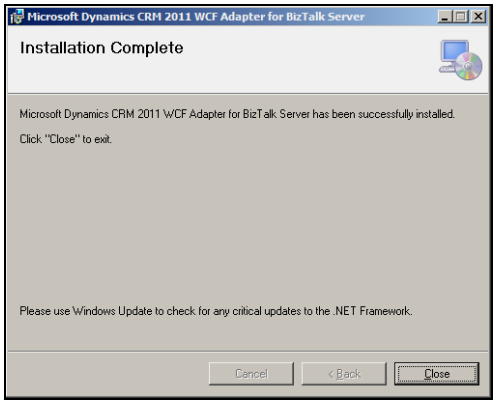
Click on „Next“.


Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server
Select Installation Folder
The installer will install Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files\Rödl Consulting AG\Microsoft Dynamics CRM 2011
Browse...
Disk Cost...
Install Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

Click on “Next”.


Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server
Confirm Installation
The installer is ready to install Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >

Click on “Next”.


Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server
Installation Complete
Microsoft Dynamics CRM 2011 WCF Adapter for BizTalk Server has been successfully installed.
Click "Close" to exit.
Please use Windows Update to check for any critical updates to the .NET Framework.
Cancel
< Back
Close

Click on “Close” to complete the installation.

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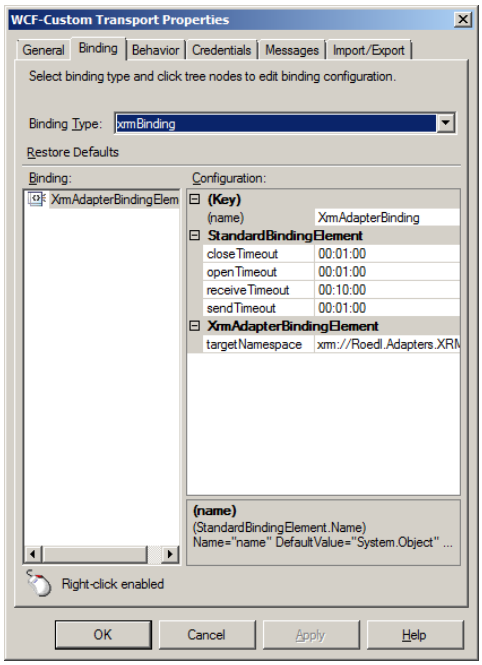
Configuration of the Adapter

You can use the adapter to, e.g., create, modify or delete OptionSet values and publish customizations. You will even be able to create, modify or delete custom entities and attributes.



WCF XRM Adapter Installation under 64 Bit

Background

Currently the XRM adapter installation process does not support 64 bit. Nevertheless the adapter itself has been compiled for any CPU which means the assembly will JIT to 64 bit code when loaded into a 64 bit process and 32 bit code when loaded into a 32 bit process. The installer only registers the assemblies in the 32 bit machine configuration, which makes it unusable under 64 bit for BizTalk.
However as long as there is no update to fix that issue, there is an easy manual process to fix that.

Manual Registration Instruction

It would be useful to use the entries in the 32 bit machine configuration as an template via copy and paste. Remark: You will need administrative rights to change the machine configuration file!
Copy the template:

1.) Browse to folder: `%Windows Path%\Microsoft.NET\Framework\v.4.0.xxxxx\Config` and open the file `machine.config`
2.) Navigate to the node `configuration\system.serviceModel` and find the entries **`XrmAdapter`** under `<bindingElementExtension>` and **`xrmBinding`** under `<bindingExtension>`
   a. The entry XrmAdapter should look like (depending on installed version):
   ```
   <add name="XrmAdapter"
   type="Roedl.Adapters.XRM.XrmAdapterBindingElementExtensionElement,
   Roedl.Adapters.XRM.XrmAdapter, Version=1.4.xx.xx, Culture=neutral,
   PublicKeyToken=f06782905cde877e" />
   ```
   b. The entry xrmBinding should look like (depending on installed version):
   ```
   <add name="xrmBinding"
   type="Roedl.Adapters.XRM.XrmAdapterBindingCollectionElement,
   Roedl.Adapters.XRM.XrmAdapter, Version=1.4.xx.xx, Culture=neutral,
   PublicKeyToken=f06782905cde877e" />
   ```

Paste to the 64 bit machine configuration:

1.) Browse to folder: `%Windows Path%\Microsoft.NET\Framework64\v.4.0.xxxxx\Config` and open the file `machine.config`
2.) Navigate to the node `configuration\system.serviceModel` and append under `<bindingElementExtension>` the copied **`XrmAdapter`** entry.
3.) Navigate to the node `configuration\system.serviceModel` and append under `< bindingExtension >` the copied **`xrmBinding`** entry.
4.) Save the machine.config file (at this point administrative privileges are needed)

Now you should have the XRM Adapter fully accessible under 64 bit available within the BizTalk Administration Console after the next Restart of the Console.

Important Note for Visual Studio:
Please do not forget also to install the Microsoft BizTalk Adapter Pack for 32 bit (x86), since its crucial for the use under Visual Studio schema generation (the process runs only under 32 bit).

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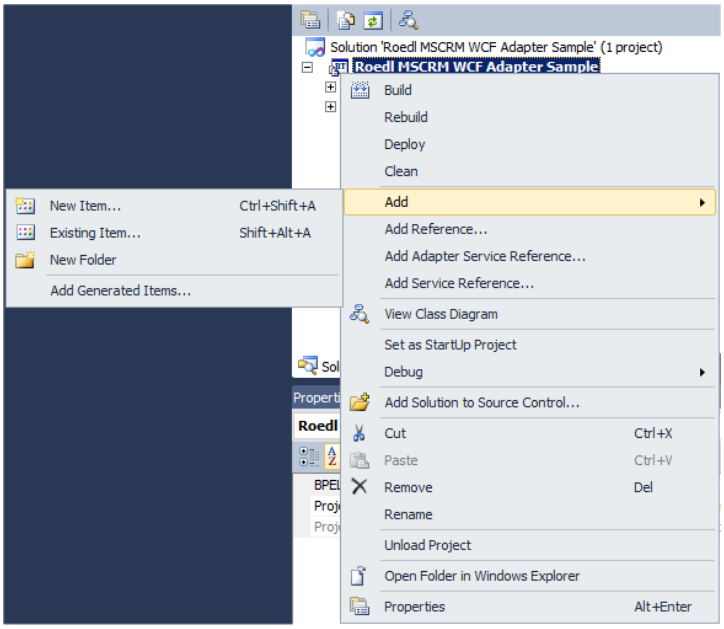
Working with the R&P MS CRM WCF Adapter for MS BizTalk

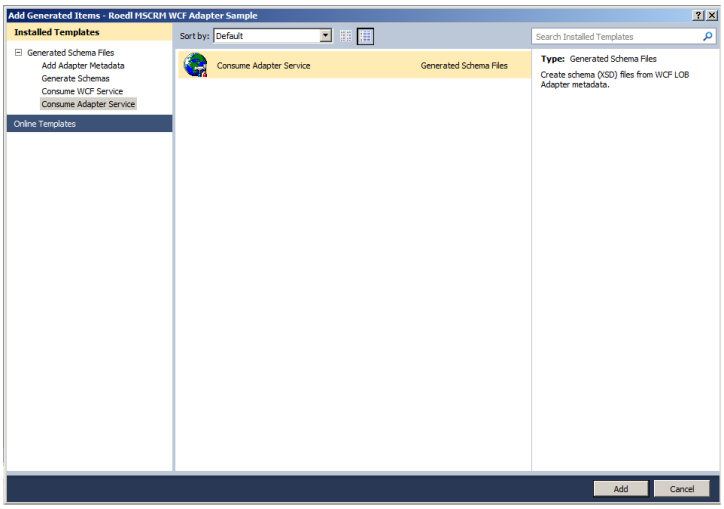
Working with the *R&P MS CRM WCF Adapter for MS BizTalk* is divided into two workspaces. On the one hand send ports will be defined that are physically linked with the adapter. We call this workspace **Runtime Customization**.
On the other hand schemas will be created in Visual Studio, e.g. account schema. These schemas are needed to send and receive messages. We call this workspace **Designtime Customization**.

Working with the adapter in Visual Studio (Designtime)

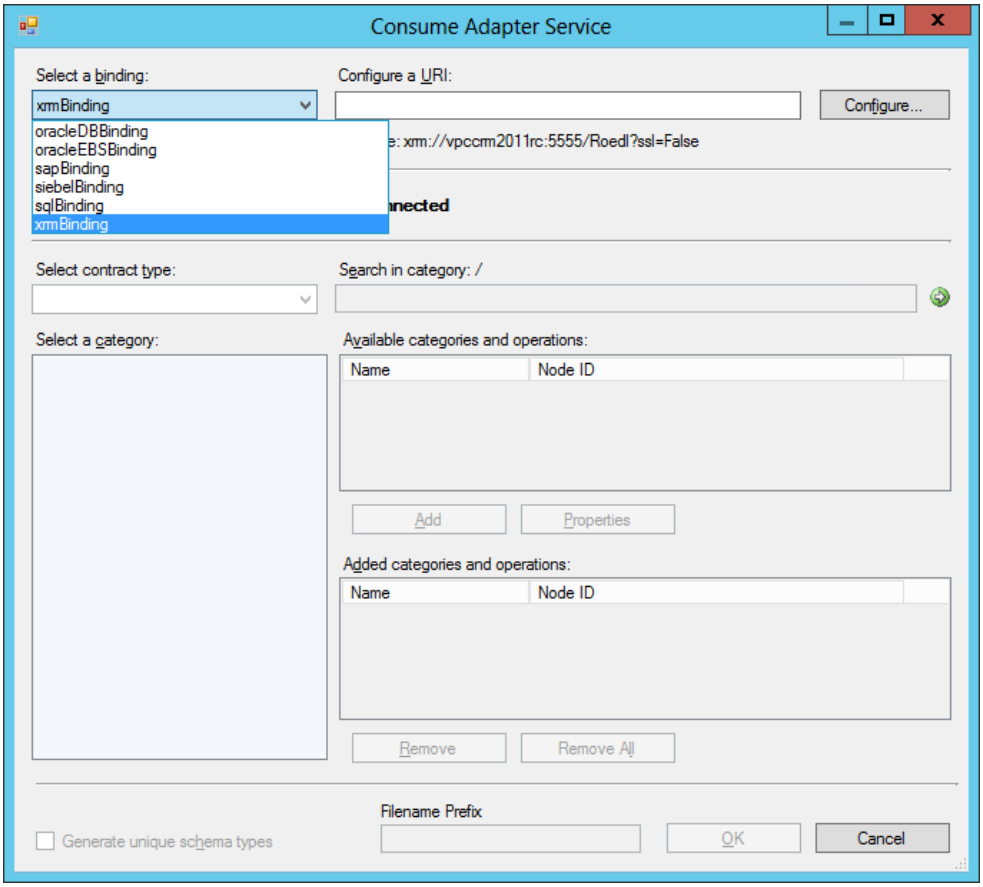
1. To start the adapter wizard, right-click on your project and select ***Add*** and ***Add Generated Items***.



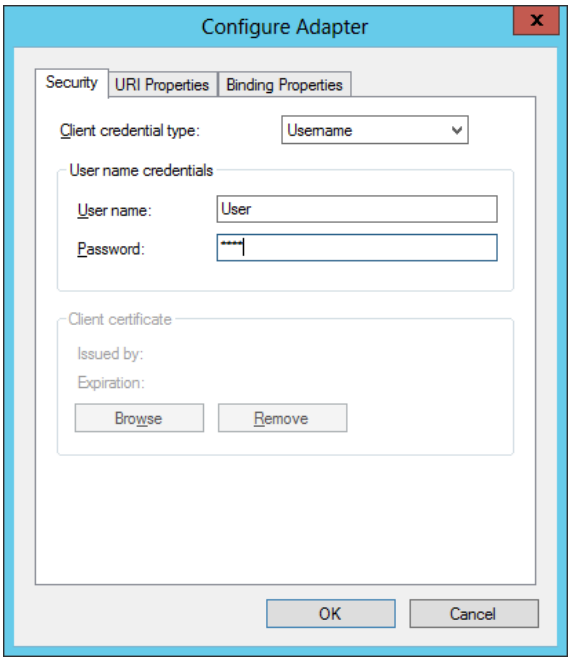
2. In the following screen, select ***Consume Adapter Service*** and click ***Add***.



3. Now choose the binding and click ***Configure…***



4. Here, you can enter the configuration for the Microsoft Dynamics CRM 2011 system you want to connect with. On the tab “Security” you have to enter the credentials which are used to authenticate against Microsoft Dynamics CRM 2011.



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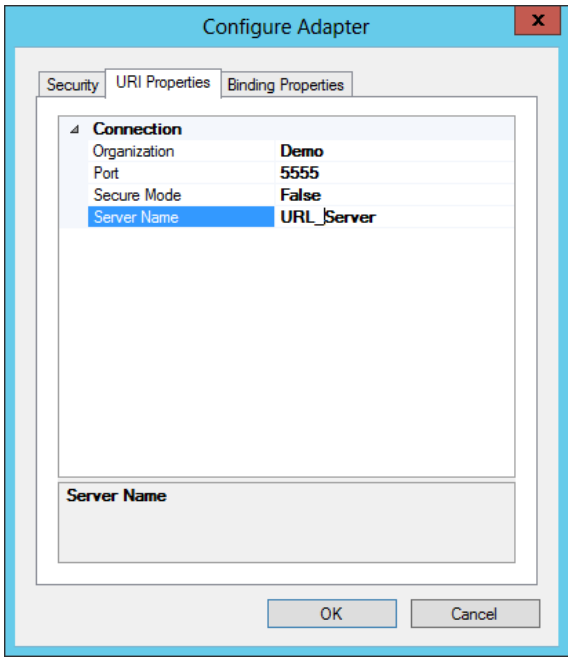
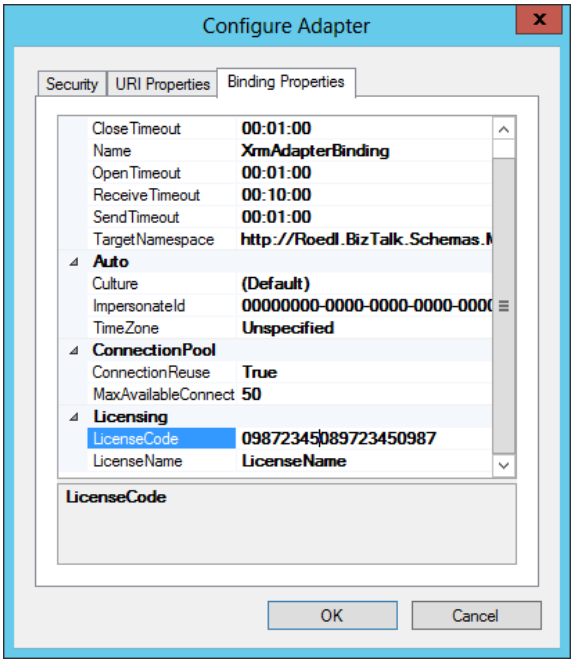
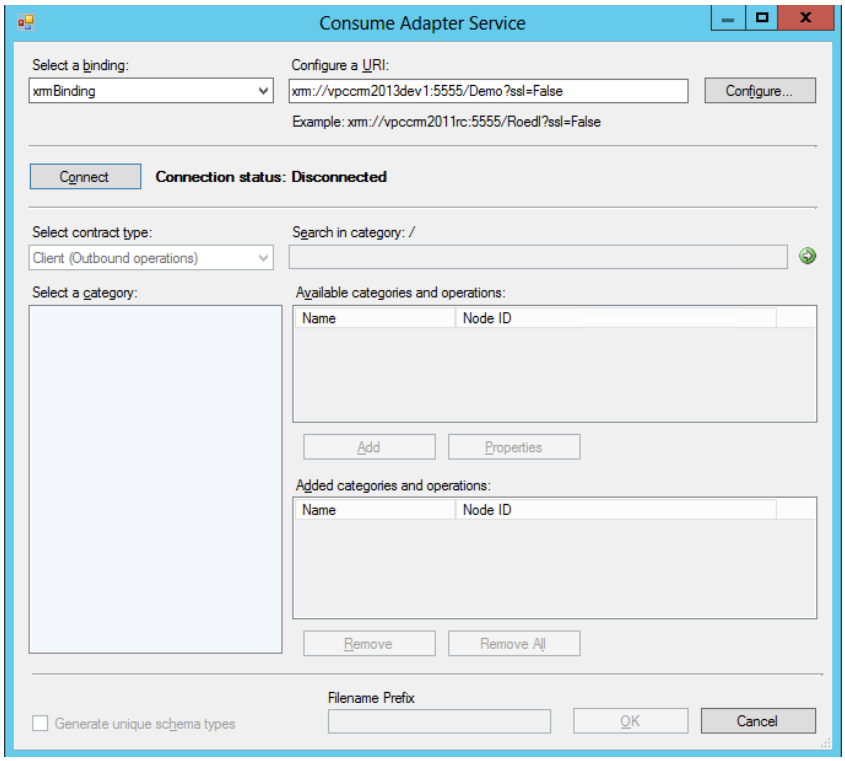
5. On the tab “URI Properties” you have to select the **Authentication Type**. Choose **Active Directory** if you are going to connect to an on-premise system, which uses the active directory to authenticate users. Choose **Live ID** if the target system is hosted in the Cloud and uses Windows Live ID for authentication. Furthermore, the organization, the port, transport security (http or https) and the server name have to be entered.



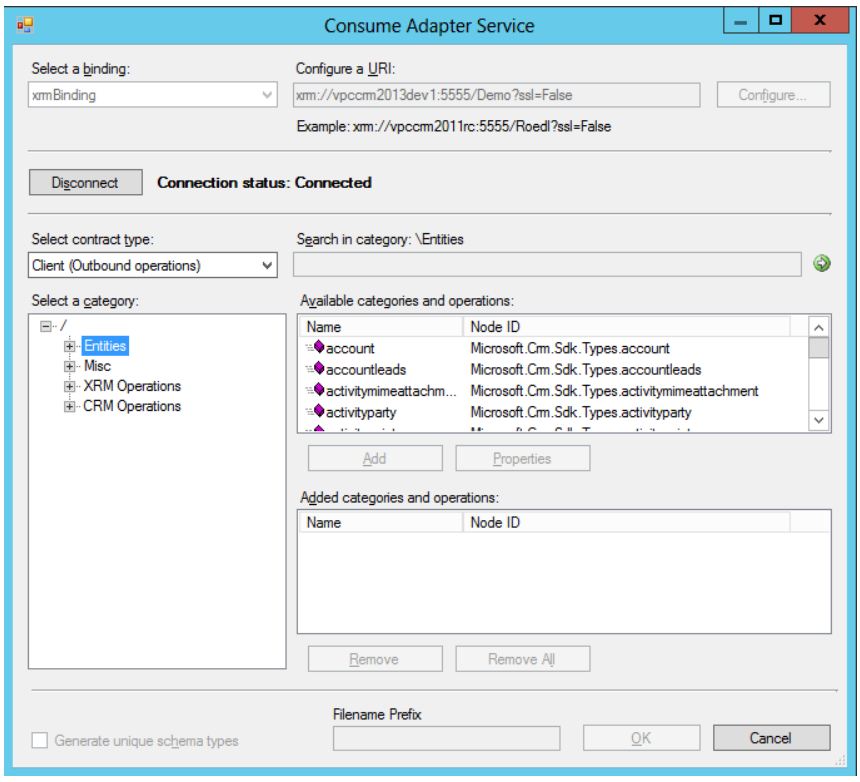
6. On the tab “Binding Properties” you can choose some general timeout options and the target namespace. In the section **licensing** you have to enter the license code and license name you have received upon your purchase.



7. Click Ok to save the configuration and close the window. If you do not wish to define your own target namespace, the adapter will use the default target namespace “xrm://Roedl.Adapters.XRM”. Of course, you can make changes to this setting at any time.



8. By clicking Connect, the adapter authenticates against Microsoft Dynamics CRM 2011, collects some further information from the system and finally provides you a set of categories to work with.



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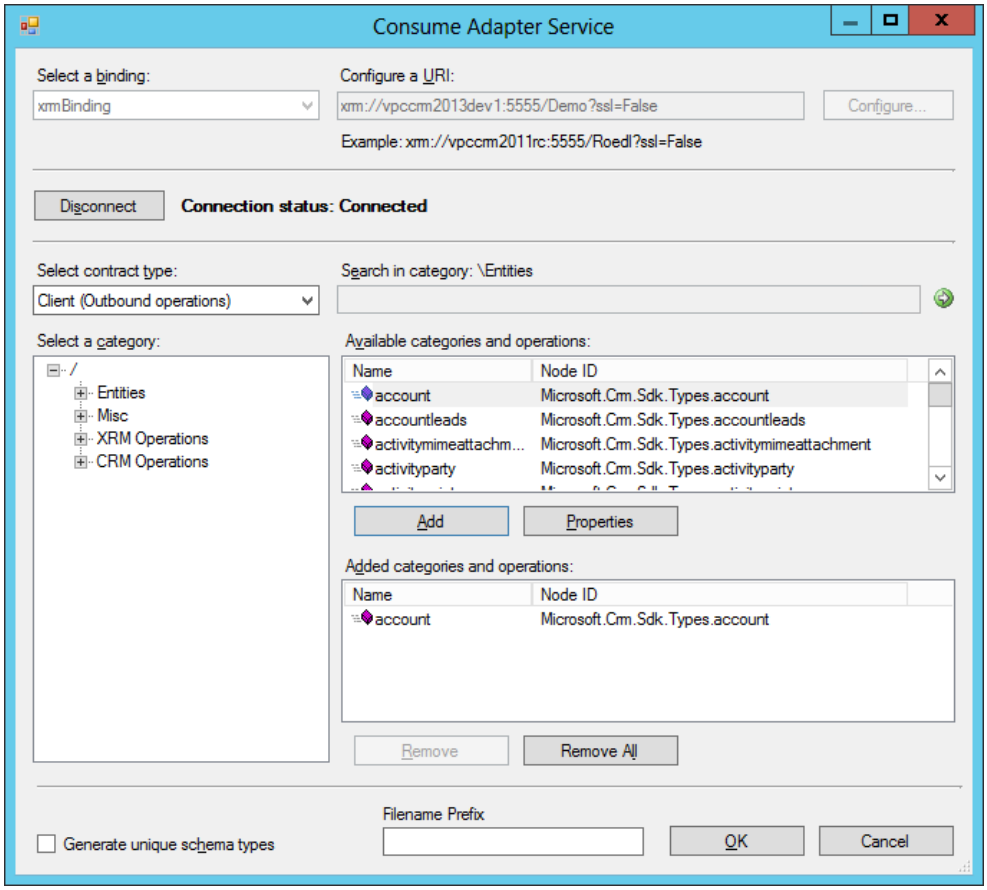
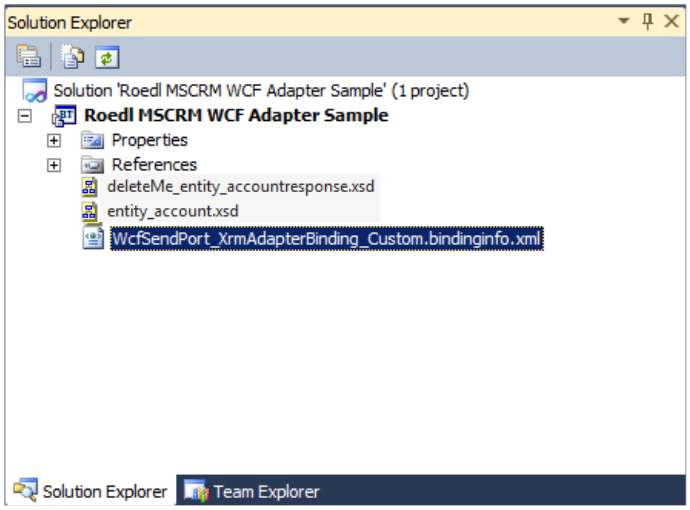
9. In the treeview, four groups appear
   - **Entities** (contains all entities found in the target system, even custom entities)
   - **Misc** (special functions such as Fetch)
   - **XRM Operations** (all possible WCF operations of the XRM object model, especially metadata operations)
   - **CRM Operations** (all possible WCF operations of the CRM object model, such as assign owner)

10. Select the desired entities and functions and add them with the Add button.



11. Click OK to close the window and generate the chosen schemas.
    The solution explorer may appear like this if you have selected the Fetch operation and the account entity:



12. The files “deleteMe_entity_xxxResponse.xsd can be deleted.

13. Use the generated file named WcfSendPort_Adaptername_Custom.bindinginfo.xml to easily create and configure a send port, without entering the whole configuration in the BizTalk Administration Console again.

Attention:
In the XSD file of an entity, a schema for the entity itself and the appropriated entity collection will be generated. The name of this collection is a combination of the entity name and the word *List*. For example, by generating the schemas for the entity "**Account**" a XSD file named *entity_Account.xsd* containing the schemas *Account* and *AccountList* will be created. The collection schema will be needed for the Fetch response of the several entities.

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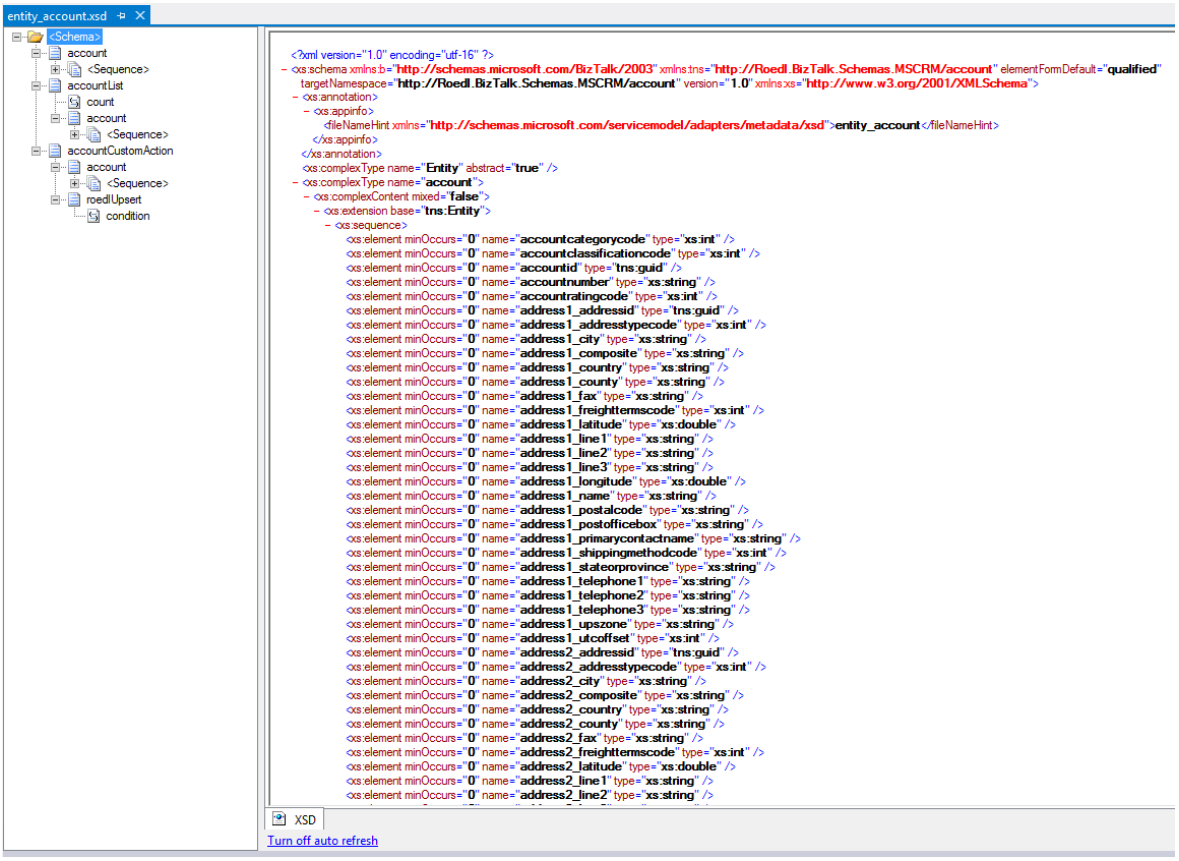
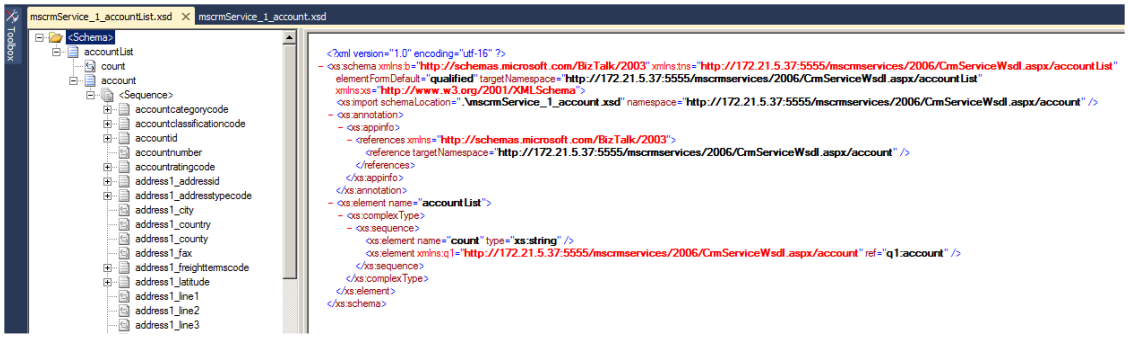
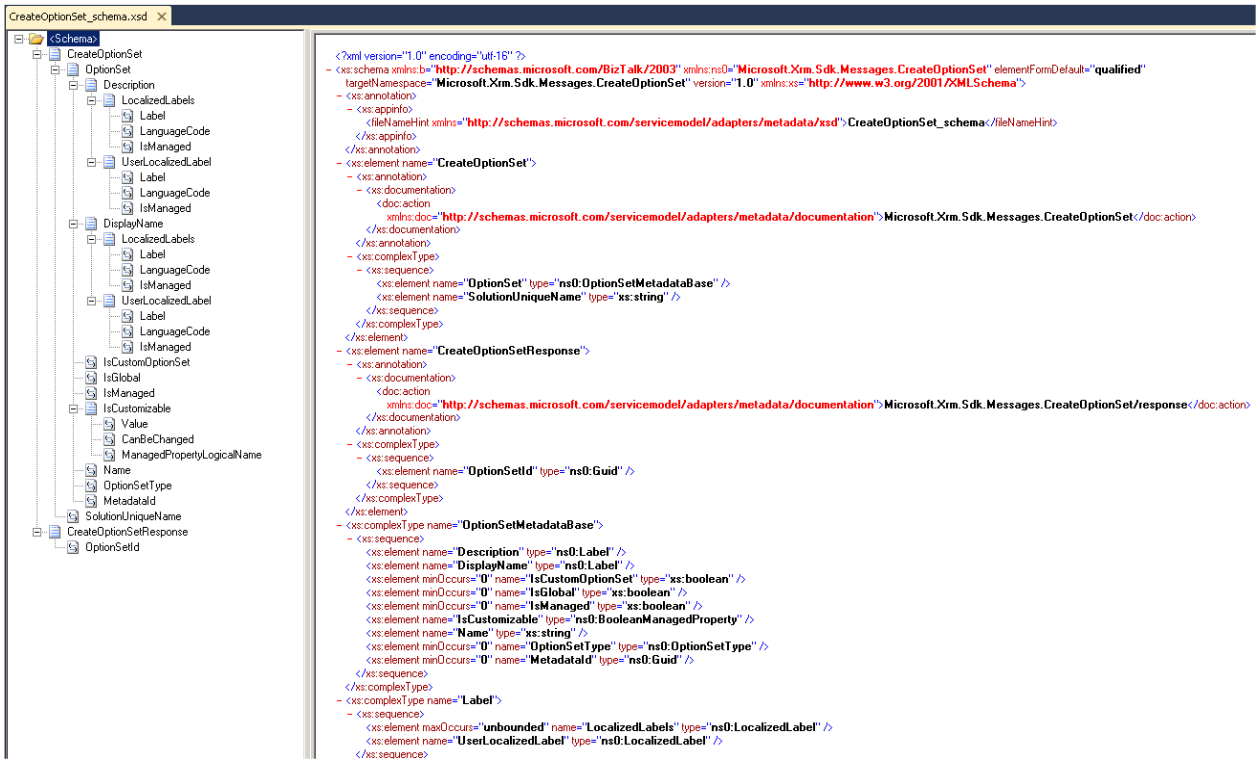
Sample schema for an entity (**Account**):



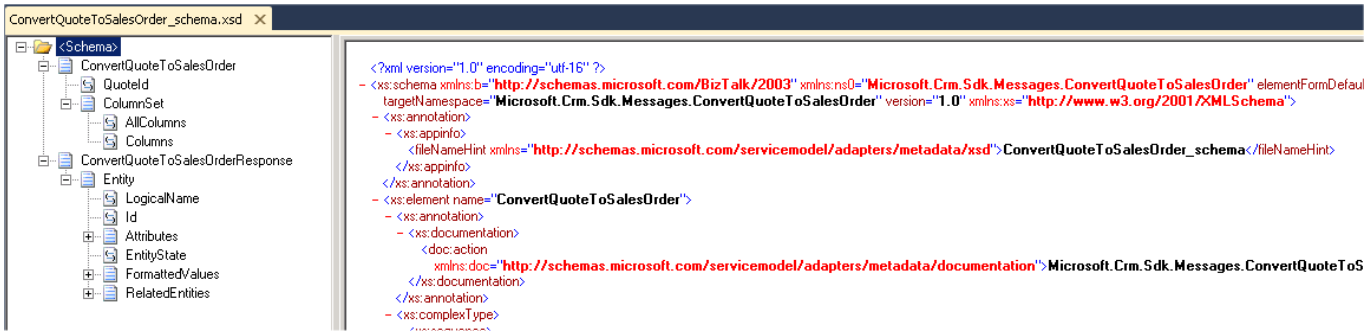
Sample schema for an entity collection (**AccountList**):



Sample schema for an XRM function (**CreateOptionSet**)



Sample schema for a CRM function (**ConvertQuoteToSalesOrder**)



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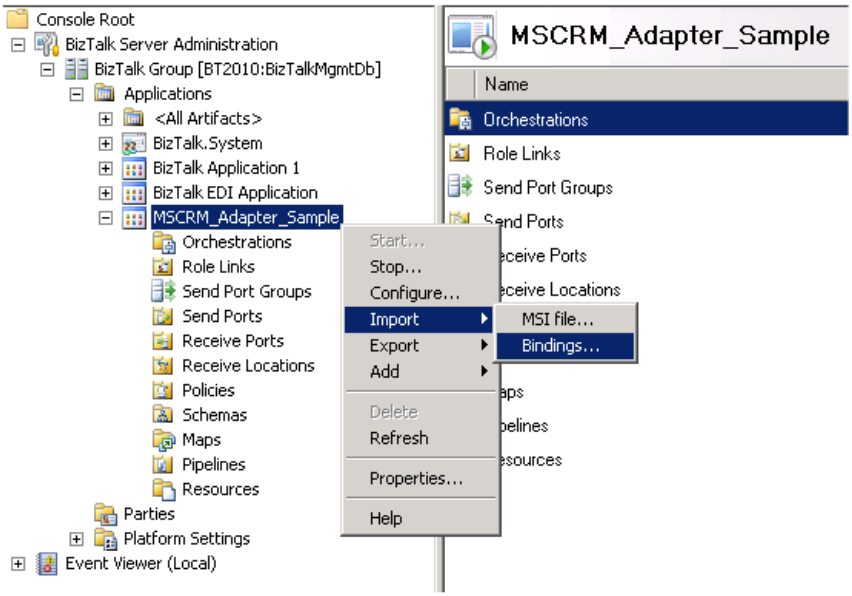
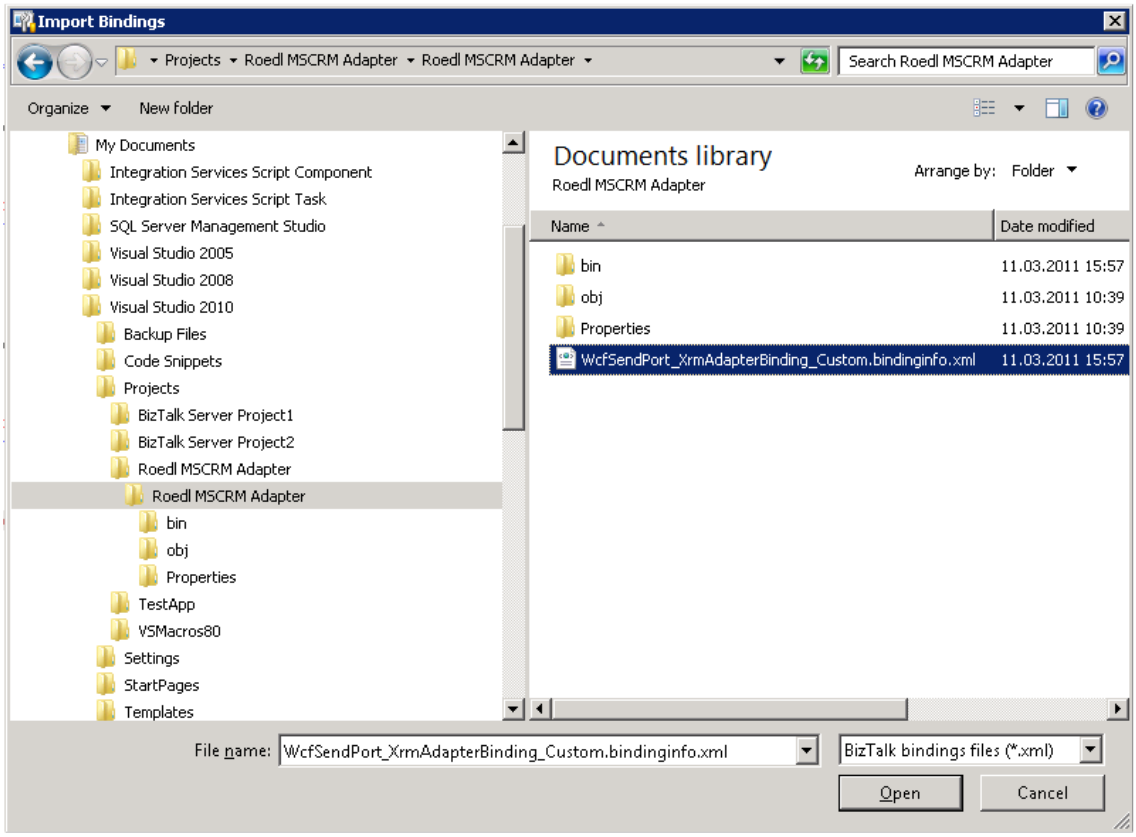
Configuring send ports for the adapter (Runtime)

1. When creating the schema in the designtime, an XML file is created and added to your project. Start the ***BizTalk Server Administration Console*** und navigate to your application, e.g. ***„MSCRM_Adapter_Sample“.***

2. Right-click on ***Send Ports***, select ***Import*** and click ***Bindings…***

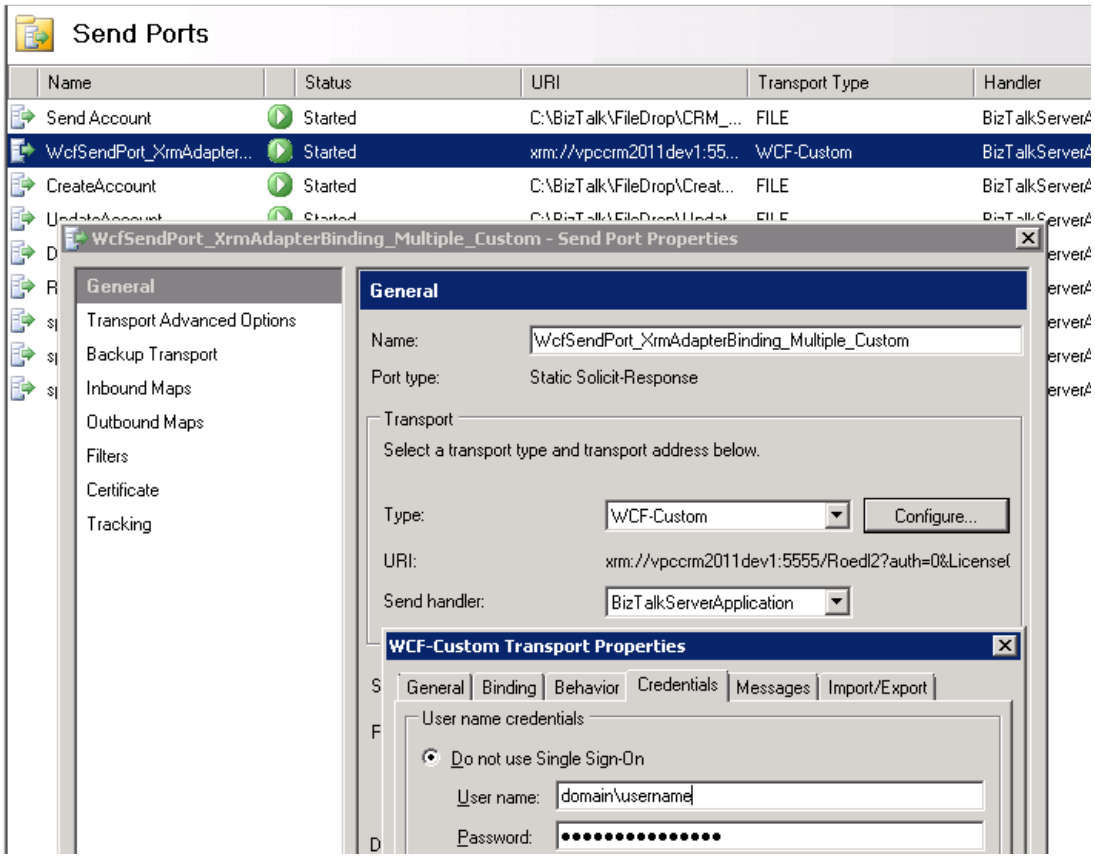


3. A file selection window appears



Navigate to your VS Solution and select the appropriated XML file for the binding configuration. Confirm the import and the send receive port will be created automatically.

4. You must enter your credentials again, usually only the password, and the send port to Microsoft Dynamics CRM is almost fully configured.



5. Enter the following XML string into the text field in the section SOAP Action Header:

```
<BtsActionMapping xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <Operation Name="Create" Action="Create" />
  <Operation Name="Update" Action="Update" />
  <Operation Name="Retrieve" Action="Retrieve" />
  <Operation Name="Fetch" Action="Fetch" />
  <Operation Name="Delete" Action="Delete" />
  <Operation Name="Upsert" Action="Upsert" />
</BtsActionMapping>
```

Attention:
The Upsert statement is a new functionality for much faster development!

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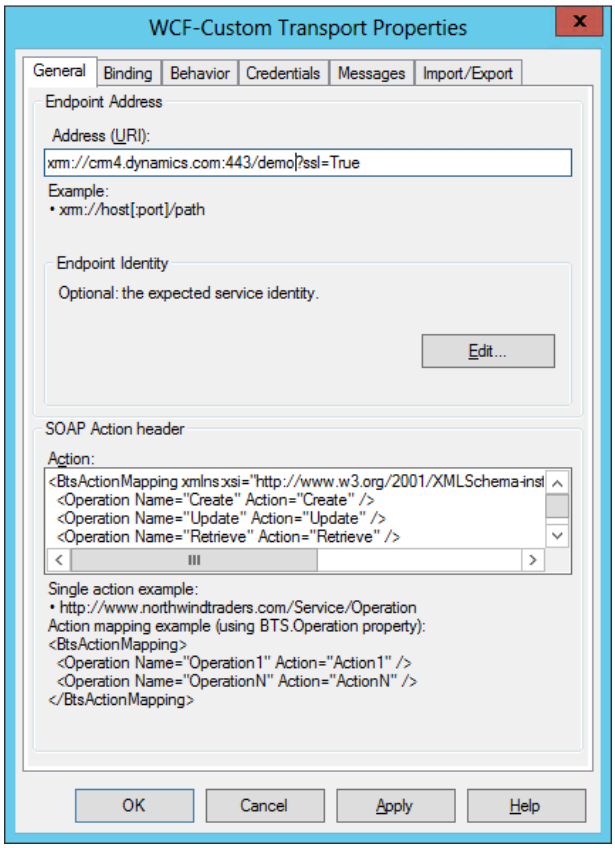
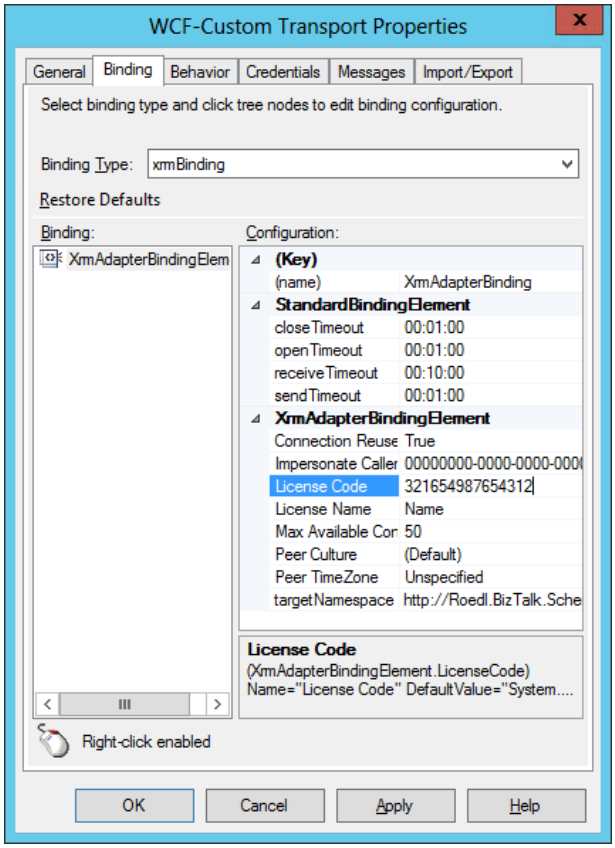
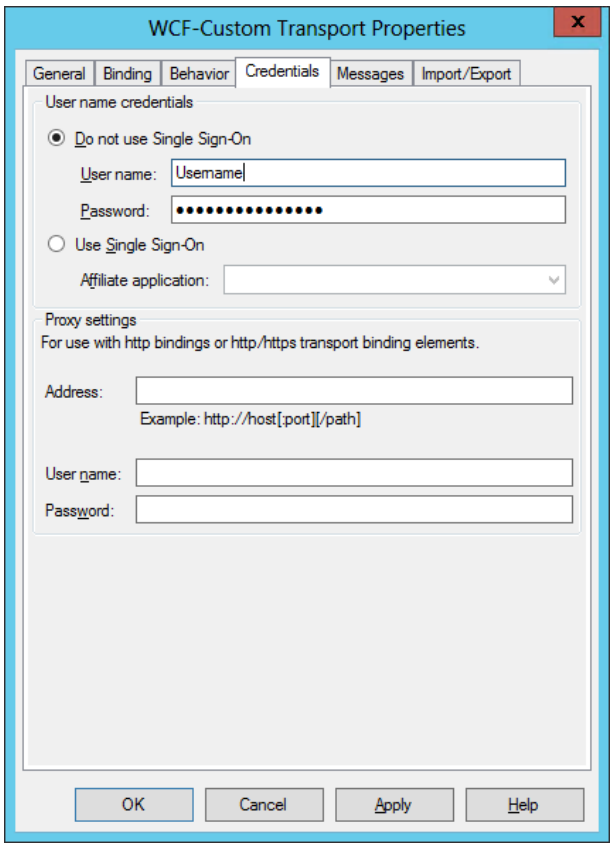




6. Enter the License Name you've received upon your purchase.
7. Enter the License Code you've received upon your purchase.

8. You should take the default value for “Target Namespace”, because your schemas are already generated with this namespace.



9. Enter user name and password on the “Credentials” tab. Depending on the CRM system it could be a domain account or a Windows Live ID account. If you are using a proxy, enter the data into the fields *Address*, *User name* and *Password*.

10. No modifications needed on the tabs “Messages“ und “Import/Export“.

11. Now the send port is ready for use.

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Example: Call a CRM entity and process the response

In this example, an account record will be created and the response will be saved in an XML file.
Unlike the original Microsoft Dynamics CRM 2011 WCF service, the adapter always works with entity objects (schemas). For both request and response.
This reduces the effort of the needed schemas and the user does not have to choose which attributes for the several entities are needed.

Prerequisites (Runtime)

Before starting the implementation of the example, some preparations have to be made:

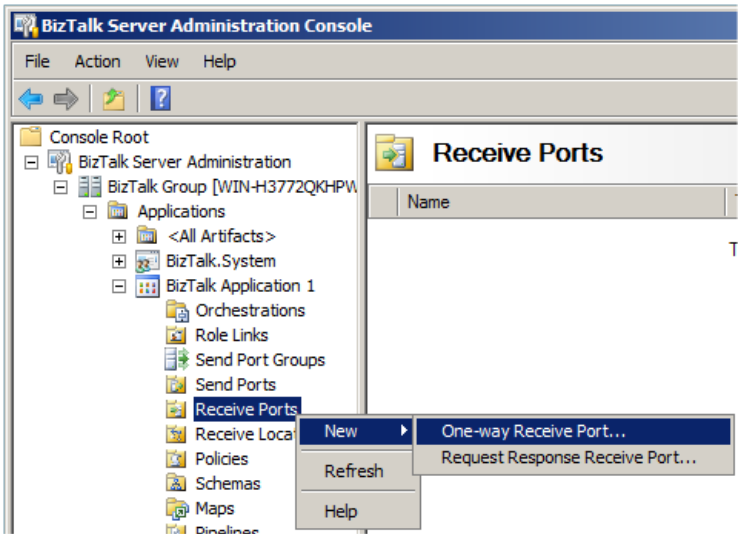
- Create the following folder structure on the BizTalk Server:
  c:\
  ↳BizTalk
  ↳ Filedrop
  ↳ CreateAccount
  ↳ Request
  ↳ Response

- We will need the following information of the CRM system:
  - URL
  - Login credentials
  - Proxy, if necessary

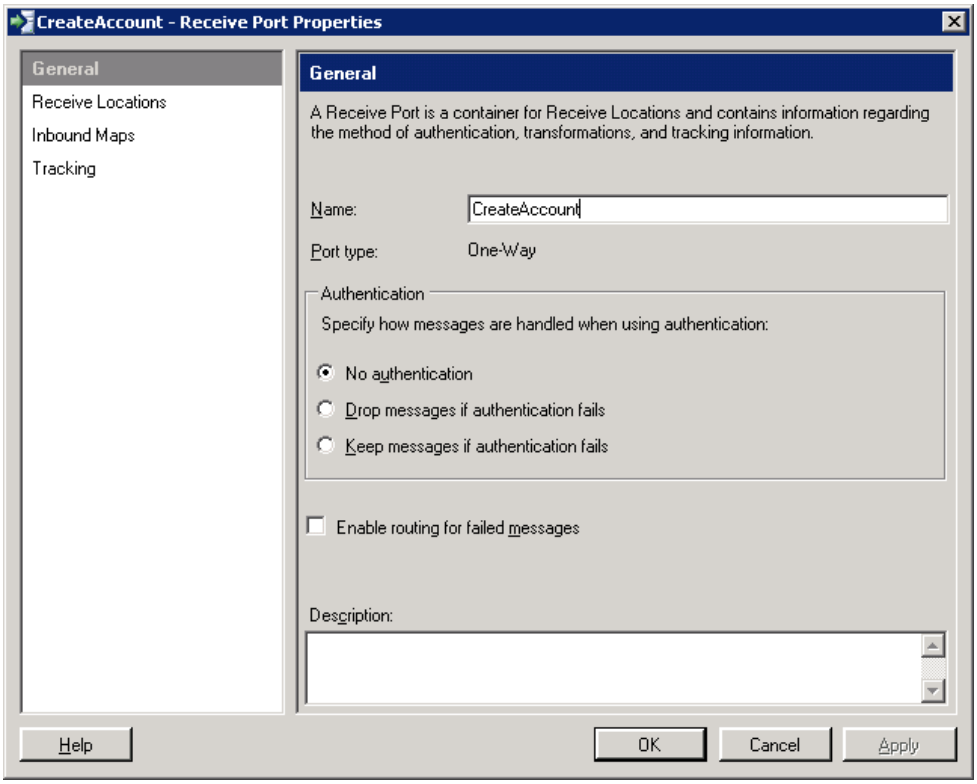
Step 1: Creating the receive port "Account"

1. Open the ***BizTalk Server Administration Console***

2. Right-click on ***Receive Ports,*** select ***New*** and click ***One-way Receive Port…***.



3. Enter **CreateAccount** in the *Name* field and click
.



4. Right-click on the created receive port, select ***New*** and click ***Receive Location…*** .

5. In the following window select **File** in the field ***Transport Type***.

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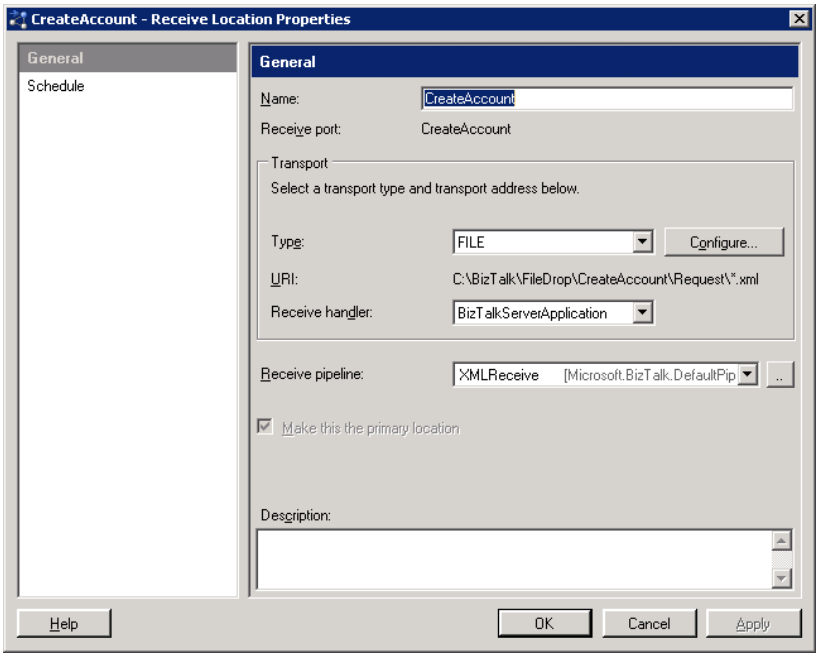
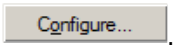
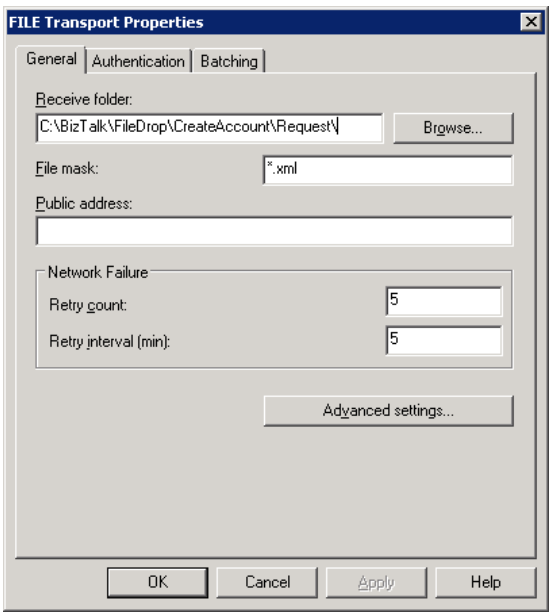


6. Select your BizTalk application instance in the field ***Receive handler***. If you didn't install a BizTalk Cluster, you can only choose the main instance.

7. Select **XMLReceive** in the field ***Receive pipeline***.

8. Click 

.



9. Enter the folder "C:\BizTalk\FileDrop\CreateAccount\Request\" in the field ***Receive Folder.*** In the other fields, leave the default values.

10. Click

.

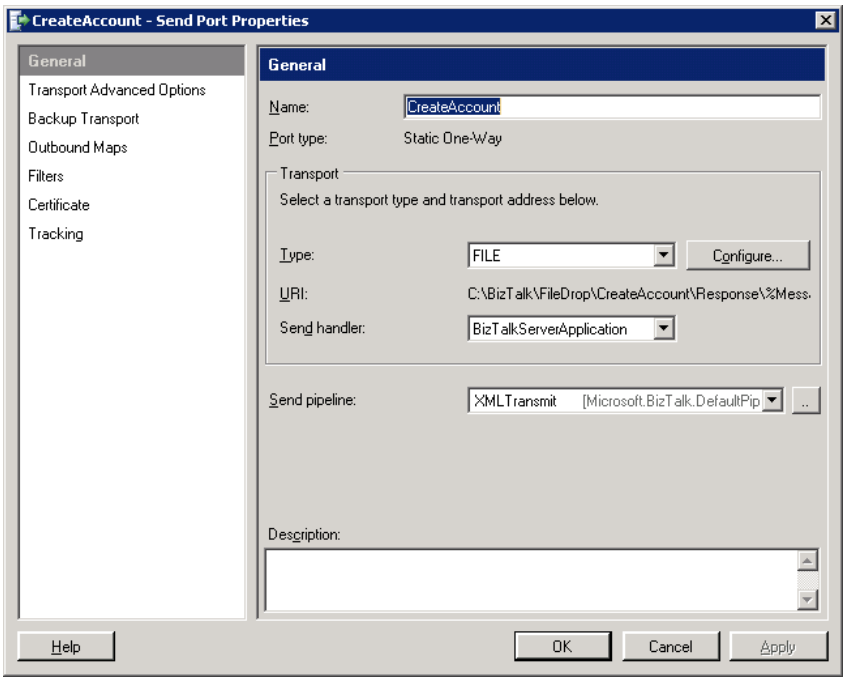
11. On the window ***Receive Location Properties*** click

.

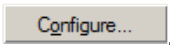
Step 2: Creating the send port "Account"

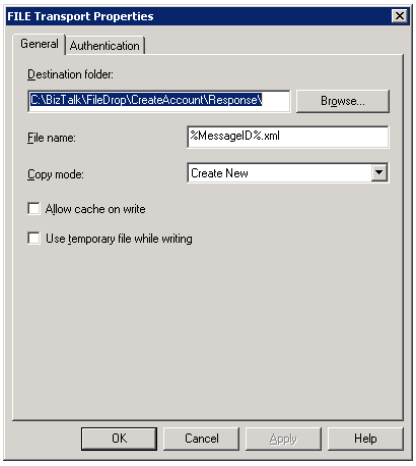
1. In the ***BizTalk Server Administration Console*** right-click on ***Send Ports***, select ***New*** and click ***Static One-way Send Port…*** .

2. In the field *Name* enter **CreateAccount**.



3. Select **File** in the field *Transport Type*.

4. Click 
.



5. Enter the folder "C:\BizTalk\FileDrop\CreateAccount\Response\" in the field ***Destination Folder.*** In the other fields, leave the default values.

6. Click
.

7. Select **XMLTransmit** in the field *Send Pipeline*.

8. Click
.

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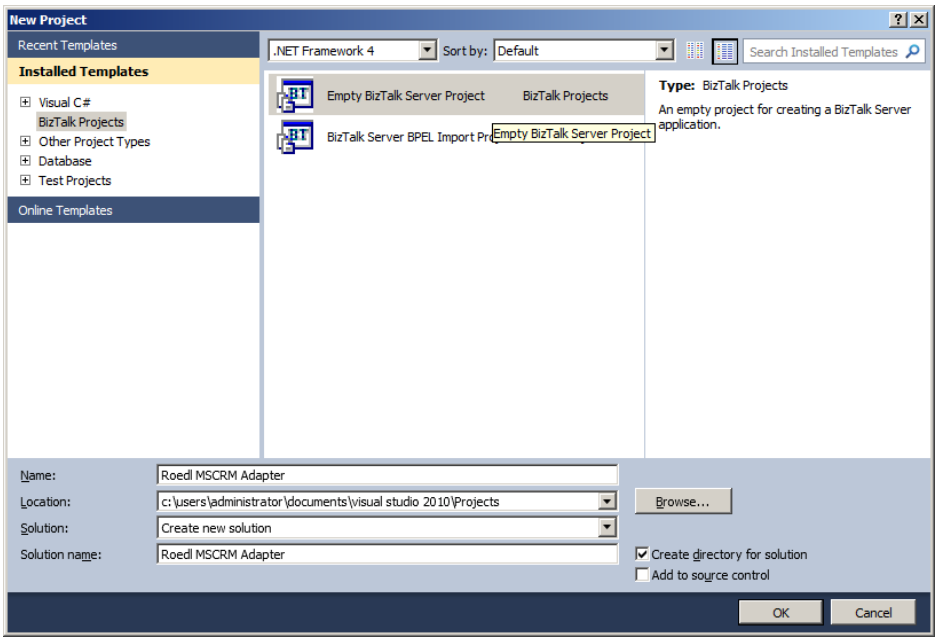
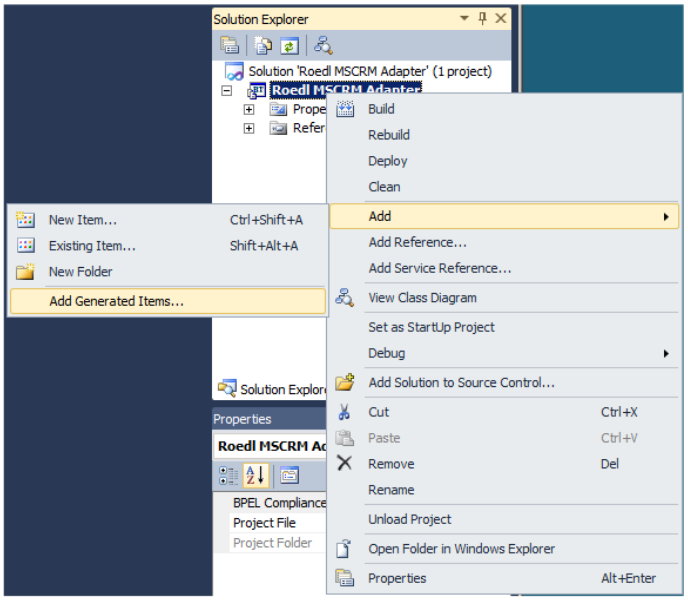
Step 3: Creating the schema for „Account“

1. Open ***Microsoft Visual Studio .NET***

2. Create a new BizTalk project named **Roedl MSCRM Adapter**



3. In the Solution Explorer right-click on your BizTalk project, select ***Add*** and click ***Add Generated Items…***



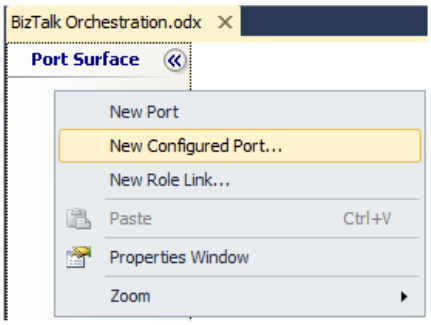
4. Proceed as described in the section **Working with the adapter in Visual Studio 2010 (Designtime)** and create the schema for the entity **Account** and the function **Fetch** (**Misc**).

5. ***R&P MS CRM WCF Adapter for MS BizTalk*** will create three files.

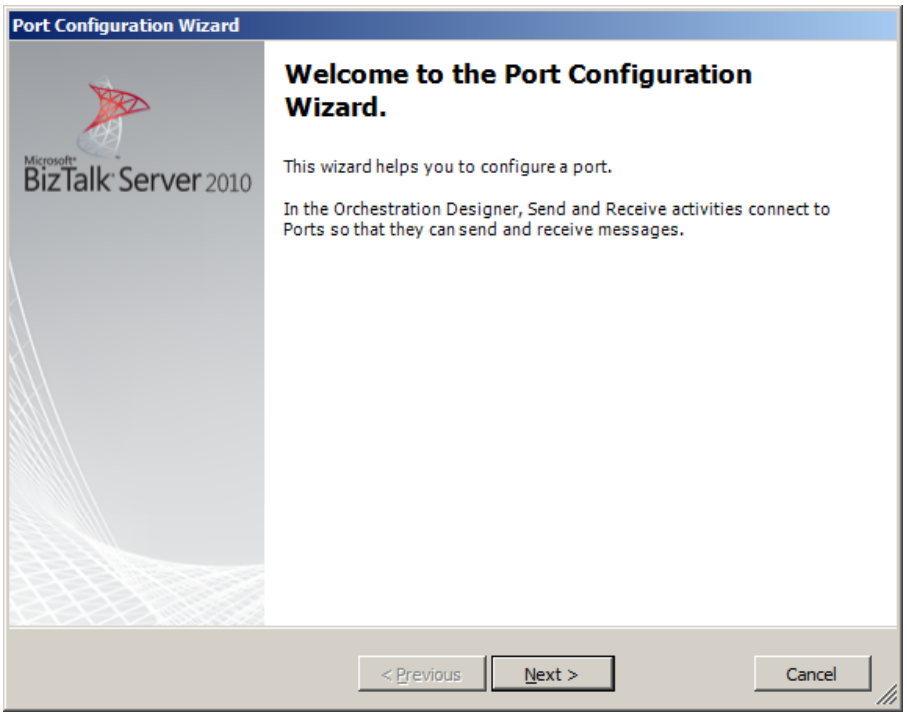
6. In the file “entity_Account.xsd” is one schema for the account (**Account)** and one schema for the account collection (**AccountList**). In the file “crm_Fetch.xsd” is the schema for the Fetch message in the file “crm_Fetch.xsd”. And an XML file containing the binding configuration for the send port.

Step 4: Creating the Orchestration

1. Create a new Orchestration named “CreateAccount”.
2. In the Orchestration Designer you will need three logical ports (in the Port Surface).
    - A ***One way Receive Port*** **“rpCreateAccount”**.
    - A ***One Way Send Port*** **“spCreateAccount”**.
    - A ***Request-Response Port*** “**MSCRM_WCF”**.
3. Right-click on the left ***Port Surface*** and choose ***New Configured Port…*** .



4. In the appearing wizard, click Next >.


Port Configuration Wizard
Welcome to the Port Configuration Wizard.
This wizard helps you to configure a port.
In the Orchestration Designer, Send and Receive activities connect to Ports so that they can send and receive messages.
BizTalk Server 2010
< Previous
Next >
Cancel

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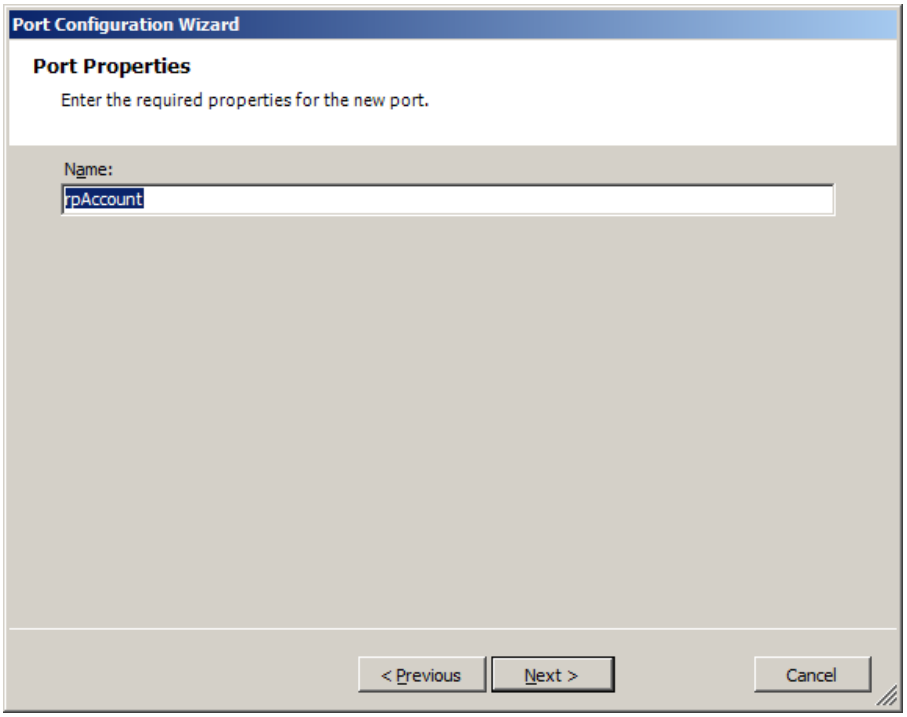
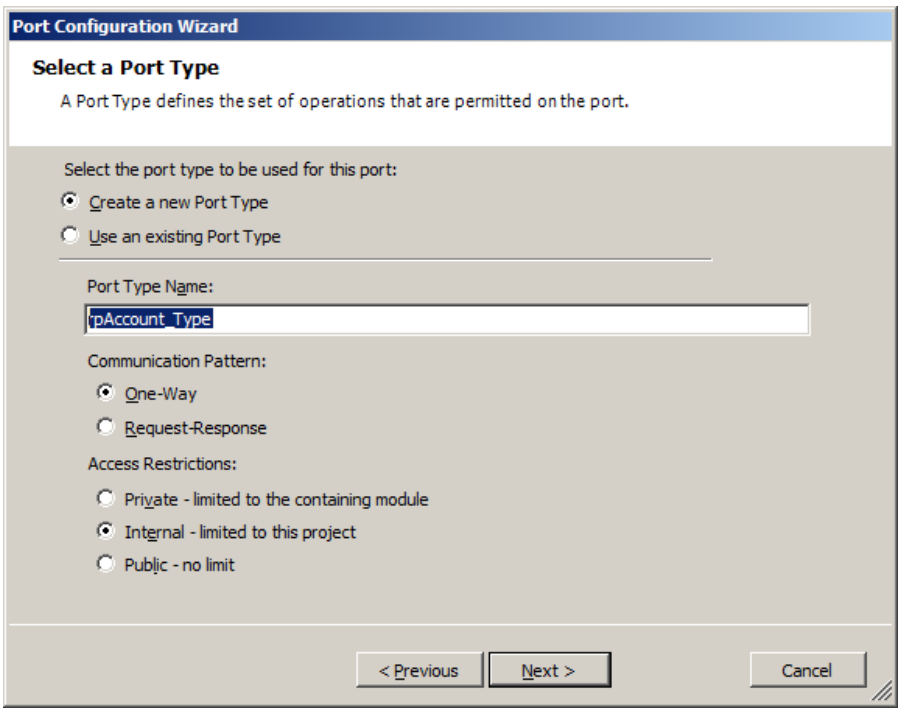
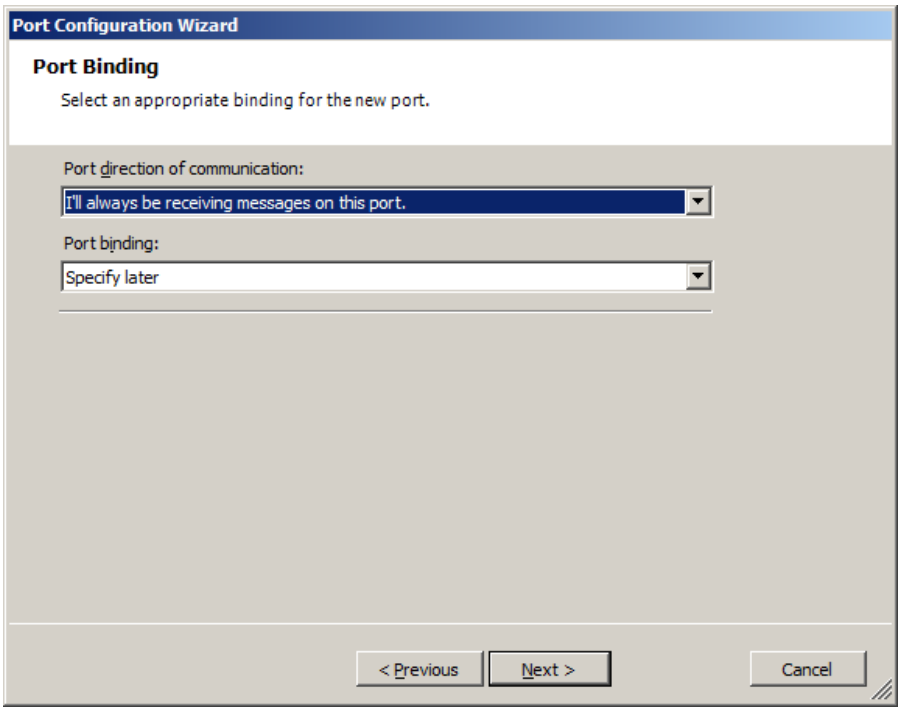
5. Type in **rpAccount** in the field ***Name*** and click Next >.



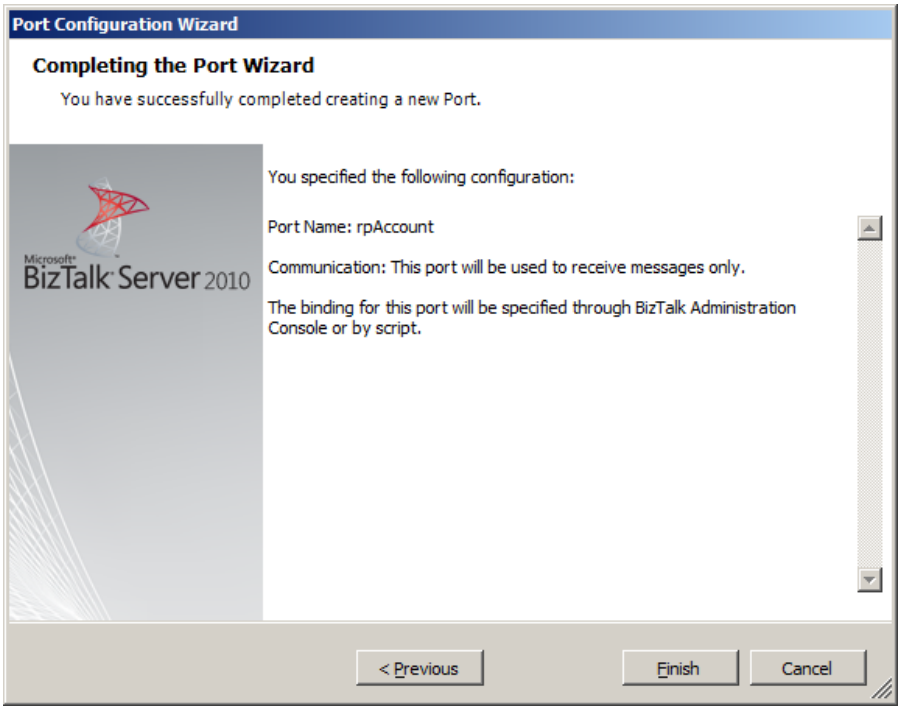
6. Enter **rpAccount_Type** in the field ***Port Type Name***. Leave all other settings as they are. Click Next >.


Port Configuration Wizard
Select a Port Type
A Port Type defines the set of operations that are permitted on the port.
Select the port type to be used for this port:
Create a new Port Type
Use an existing Port Type
Port Type Name:
rpAccount_Type
Communication Pattern:
One-Way
Request-Response
Access Restrictions:
Private - limited to the containing module
Internal - limited to this project
Public - no limit
< Previous
Next >
Cancel

7. On the next form no changes are needed. Click Next >.



8. Click Finish to finish the wizard.


Port Configuration Wizard
Completing the Port Wizard
You have successfully completed creating a new Port.
Microsoft BizTalk Server 2010
You specified the following configuration:
Port Name: rpAccount
Communication: This port will be used to receive messages only.
The binding for this port will be specified through BizTalk Administration Console or by script.
< Previous
Finish
Cancel

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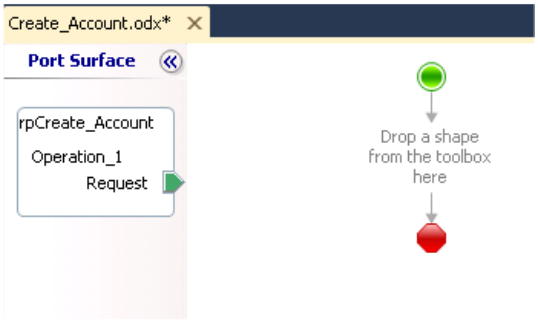
9. Your orchestration may look like this:

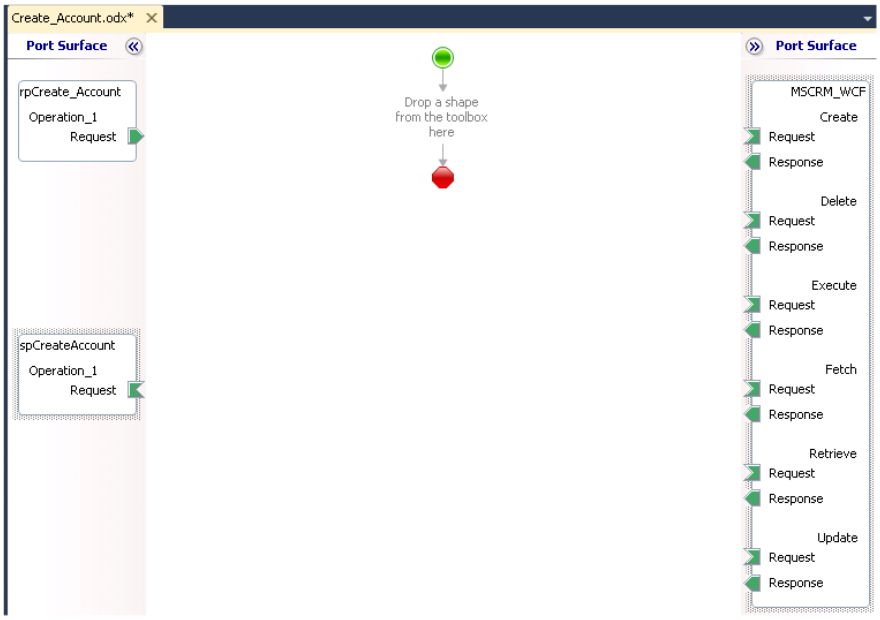


10. Repeat these steps for the send port.

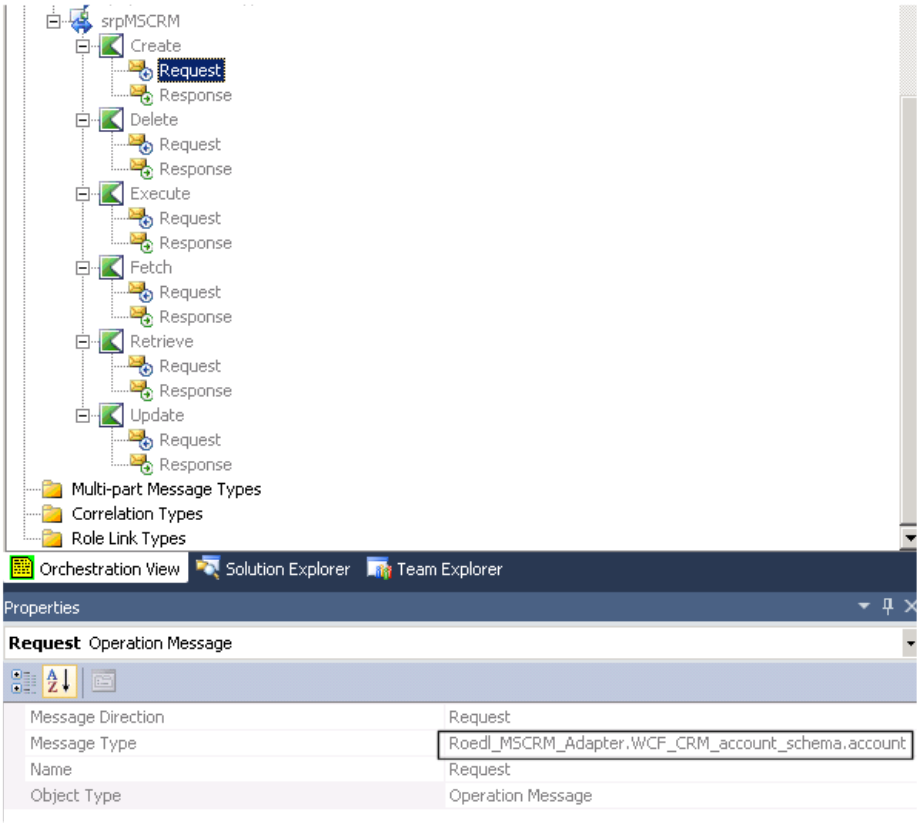
11. While configuring the send port you have to select **I´ll always be sending messages on this port** in the field ***Port direction of communication.*** All other information remains the same.

12. For the port **MSCRM_WCF** you have to create a port with multiple so-called operations, namely: Create, Update, Delete, Retrieve, Fetch and Execute.

13. Now your orchestration should look like this:



14. Select the operation Request of the Create method. In the property section, select the account schema.



15. Repeat this for all methods and enter the following schemas:

Methode	Request	Response
Insert	Account	Account
Update	Account	Account
Delete	Account	Account
Retrieve	Account	Account
Fetch	Fetch	AccountList
Upsert	accountCustomAction	Account

16. Now the port is ready to send the messages to MS CRM.

17. Now you need the send and receive shapes in the orchestration. Choose the appropriated shapes from the toolbox and drag them into the orchestration.

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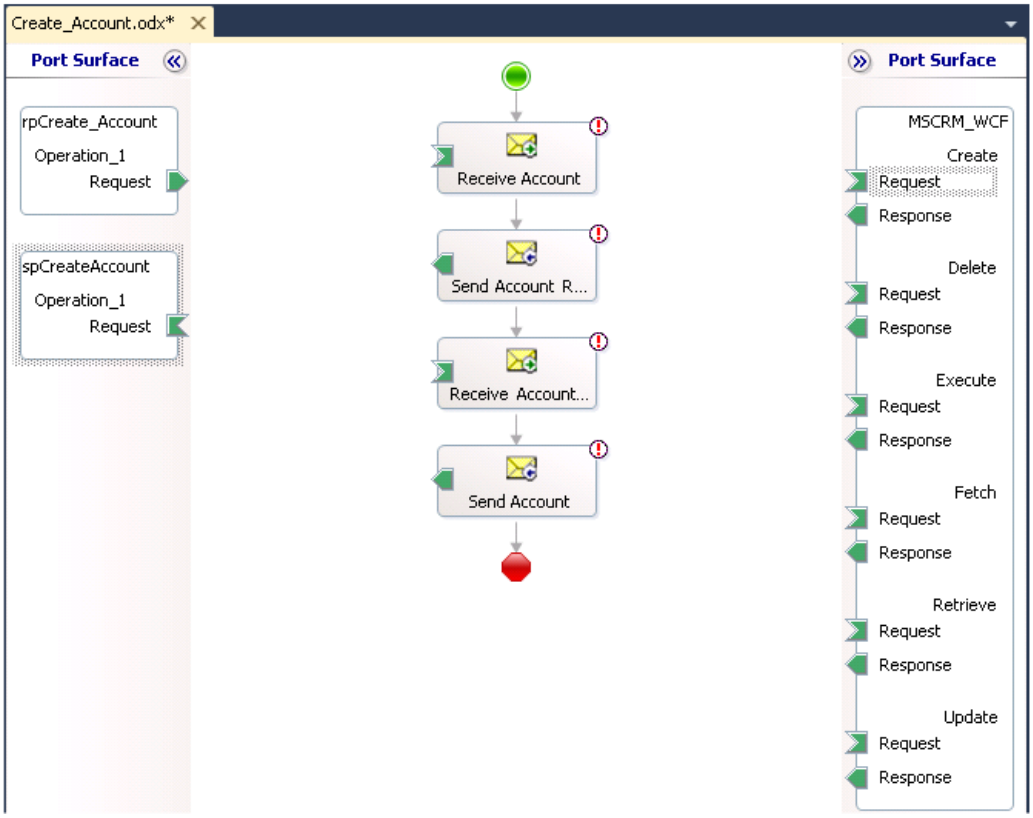
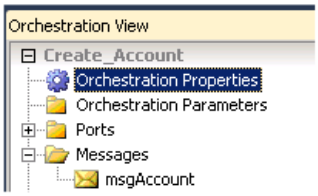
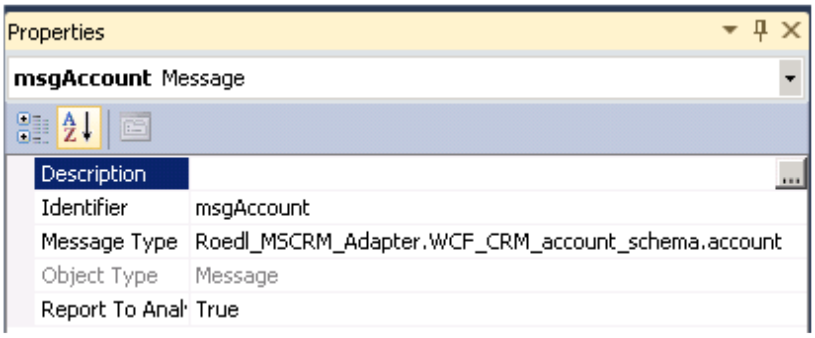
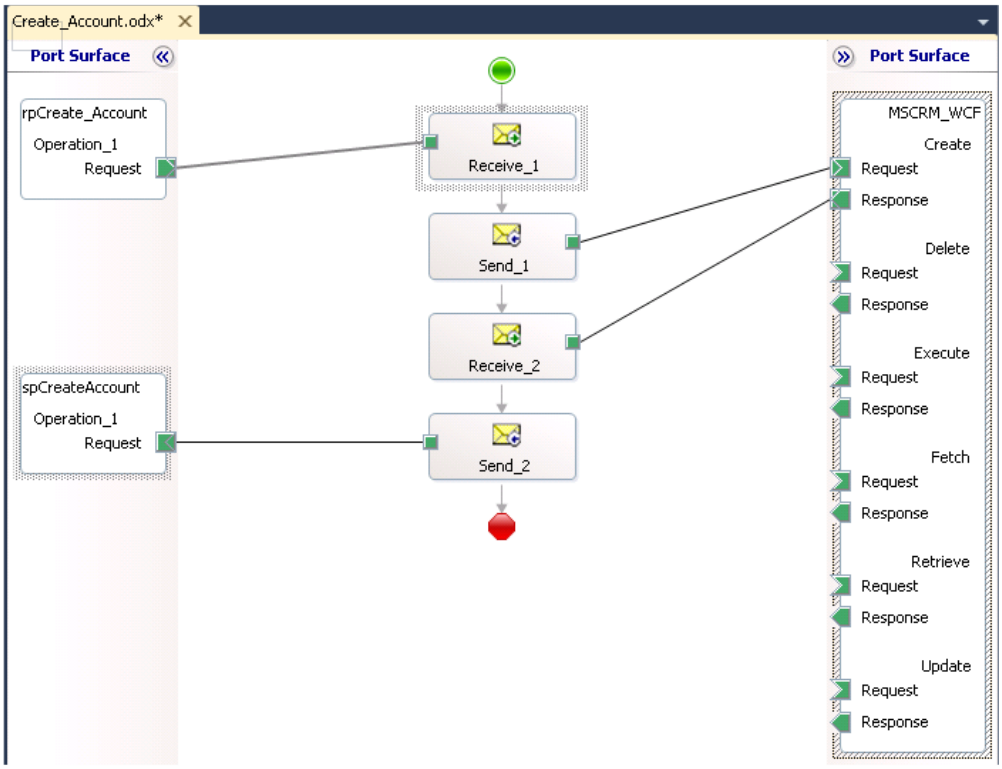


18. Now the message for the orchestration will be created.

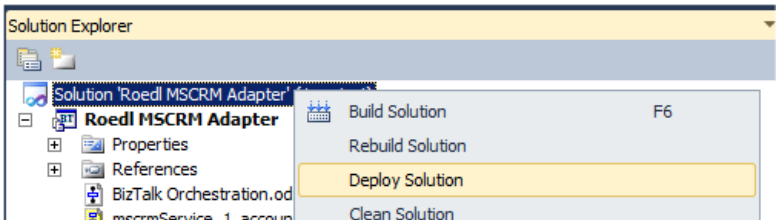




19. Assign the message to the send and receive shapes and connect them with the logical ports. After that, your orchestration should look like this:



20. The orchestration is now ready to be deployed.



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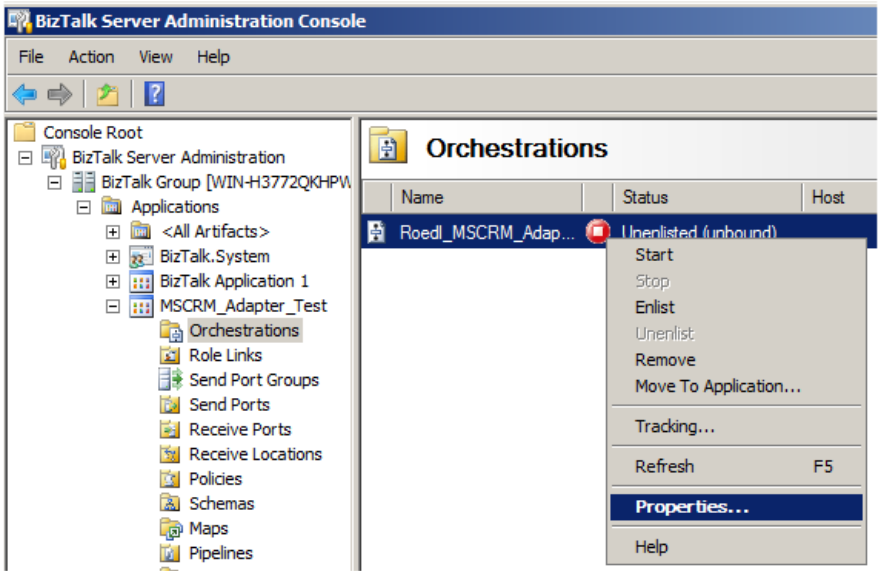
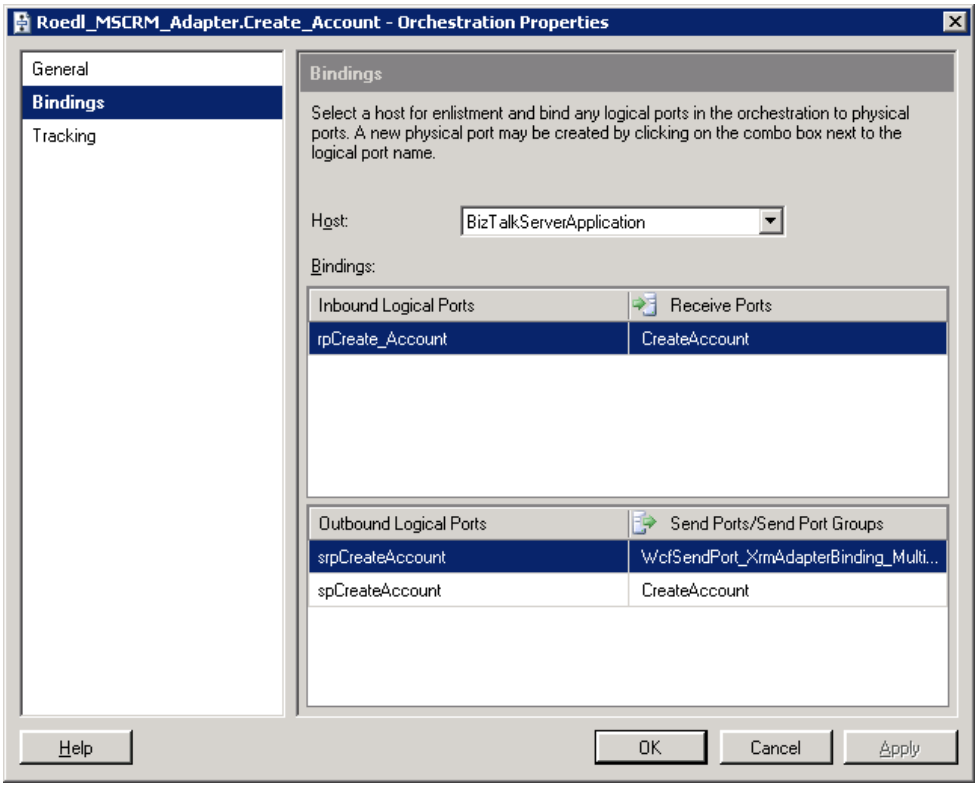
Step 5: Set up the orchestration in the BizTalk Server Administration Console

1. After successful deployment, the **BizTalk Server Administration Console** should look like this:



2. Expand the application node **MSCRM_Adapter_Test** and click *Orchestrations*.

3. Right-click on the orchestration **Create_Account** and select *Properties…*

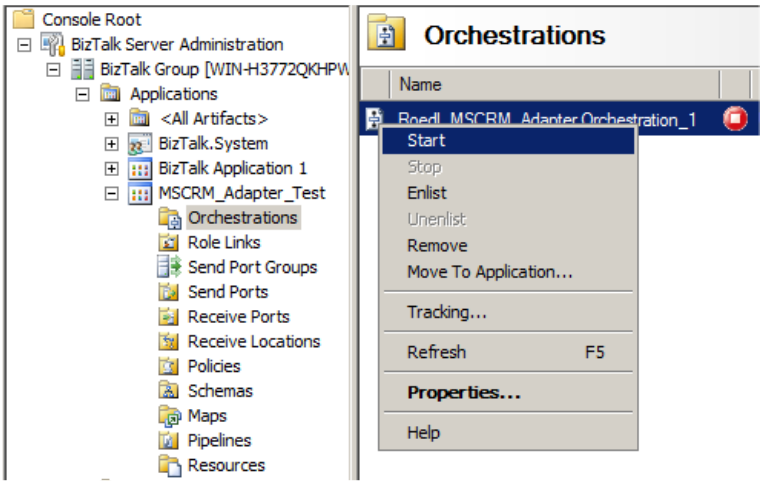


4. As shown in the screenshot above, bind the three physical ports to the virtual ports of the orchestration.

5. Connect the orchestration to the host.

6. Click OK.

7. Start the orchestration.



8. The BizTalk Server is now ready to execute the orchestration

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Step 6: Testing the Orchestration

1. Copy a XML file with the following structure into the folder *C:\...\CreateAccount\Request*.

Attention:
Take care of the namespace. It has to be the same as given in the schema of **Account**!

```
<?xml version="1.0" encoding="utf-8"?>
  <account xmlns="http://Roedl.BizTalk.Schemas.MSCRM/account">
    <name>Roedl Consulting AG</name>
    <address1_name> Roedl Consulting AG</address1_name>
    <address1_line1>Laubanger</address1_line1>
    <address1_line2>23</address1_line2>
    <address1_city>Bamberg</address1_city>
    <address1_country>D</address1_country>
    <address1_postalcode>96052</address1_postalcode>
  </account>
```

2. The BizTalk Server reads the file and sends the data to the adapter.

3. After a short time an XML file will appear in the folder *C:\...\CreateAccount\Response*. It will be named something like: **{DE15B859-B2AD-4B5D-9A46-5A2CDBE2281C}.xml**

4. The content of this file shows the data of the created account. Some system attributes created by the CRM system will appear too.

```
<?xml version="1.0" encoding="utf-8"?>
  <account xmlns="http://Roedl.BizTalk.Schemas.MSCRM/account">
    <accountid>{A61F690E-FB22-DB11-92AE-0050DA4615A6}</accountid>
    <owningbusinessunit>{C4991D79-06EB-DA11-A201-0050DA4615A6}</owningbusinessunit>
    <participatesinworkflow name="No">0</participatesinworkflow>
    <name>Roedl Consulting AG</name>
    <createdon time="4:19 PM" date="03/08/2007">2011-03-08T16:19:24+02:00</createdon>
    <createdby name="BizTalk" dsc="0">{51ACBF89-91EC-DA11-900D-0050DA4615A6}</createdby>
    <modifiedon time="4:19 PM" date="03/08/2007">2011-03-08T16:19:24+02:00</modifiedon>
    <modifiedby name="BizTalk" dsc="0">{51ACBF89-91EC-DA11-900D-0050DA4615A6}</modifiedby>
    <statecode name="Active" formattedvalue="0">0</statecode>
    <statuscode name="Active" formattedvalue="1">1</statuscode>
    <address1_addressid>{A71F690E-FB22-DB11-92AE-0050DA4615A6}</address1_addressid>
    <address1_name>Roedl Consulting AG</address1_name>
    <address1_line1>Laubanger</address1_line1>
    <address1_line2>23</address1_line2>
    <address1_city>Bamberg</address1_city>
    <address1_country>D</address1_country>
    <address1_postalcode>96052</address1_postalcode>
    <address2_addressid>{A81F690E-FB22-DB11-92AE-0050DA4615A6}</address2_addressid>
    <ownerid type="8" name="BizTalk" dsc="0">{51ACBF89-91EC-DA11-900D-0050DA4615A6}</ownerid>
    <donotsendmm name="Yes">0</donotsendmm>
    <merged name="No">0</merged>
  </account>
```

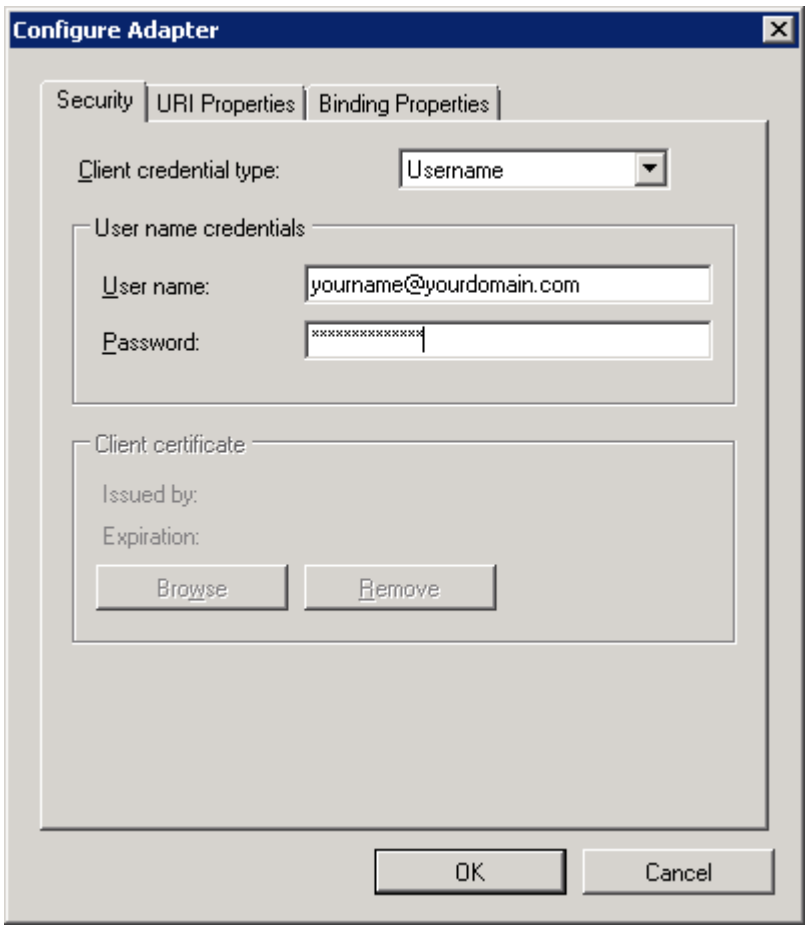
5. The data can now be processed.

Advantage:
Note that the response message contains all attributes of the entity, even the attributes provided in the request message. You can directly continue to work with this data.

Connecting to CRM Online

If you want to connect to CRM Online, please follow the steps 1-3 from
"**Working with the adapter in Visual Studio 2010 (Designtime)**" and continue with the steps below.

4. On the Security tab you have to choose the client credential type Username and provide a valid Windows Live Id account. This account has to have enough rights on the CRM Online system.



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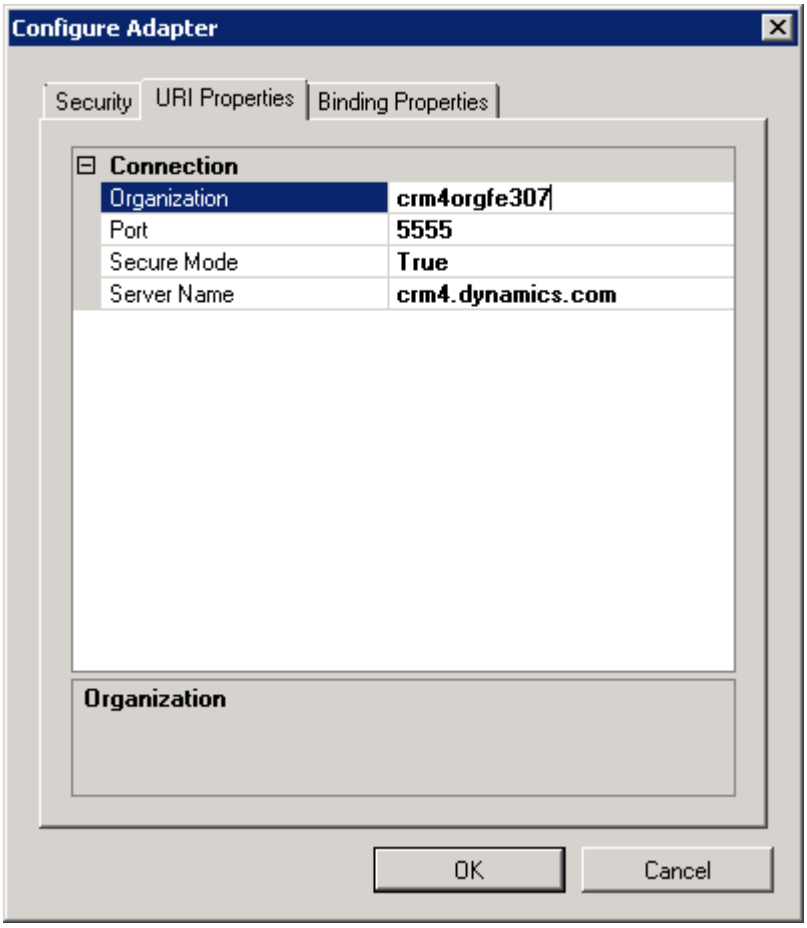
5. On the URI Properties tab you have to provide system related information.
   Please make sure that you type in the correct organization name. This is not the prefix of your CRM Online url, but you can find it in CRM Online when you go to Settings -> Customizations -> Developer Resources. It's the unique name of the organization.
   Server Name should be crm4.dynamics.com for Europe. Secure Mode = True. Port doesn't matter in this case, the Adapter will use 443 anyway.

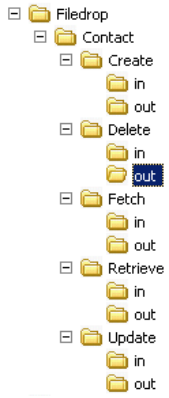


On the tab "Binding Properties" you can choose some general timeout options and the target namespace. In the section **licensing** you have to enter the license code and license name you have received upon your purchase.
Afterwards you can continue with Step 6 from "**Working with the adapter in Visual Studio 2010 (Designtime)**" and select your entities and messages.

Further examples

In the following, all the methods of the adapter will be presented once more individually in more detail using the Contact entity.

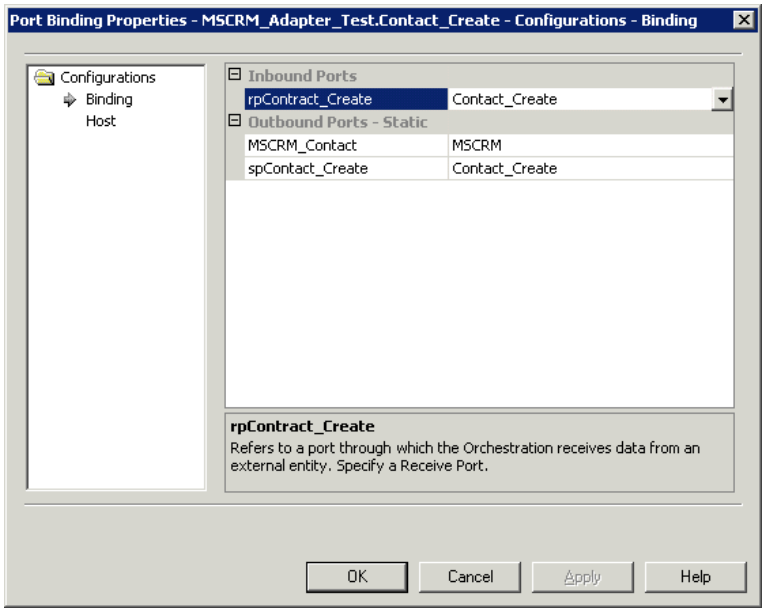
1. First create a folder structure for processing the messages. This may look like this:



2. In the **BizTalk Server Administration Console,** create the appropriate receive and send ports as described earlier in this manual.

3. Deploy the orchestrations described in the following and bind the logical ports to the physical ports in the **BizTalk Server Administration Console**. Right-click on the orchestration **Contact_Create**.

4. In the drop down fields, select the appropriate physical ports and confirm with OK.



5. Repeat Step 3 and 4 with the orchestrations **Delete_Contact**, **Fetch_Contact**, **Retrieve_Contact** and **Update_Contact**.

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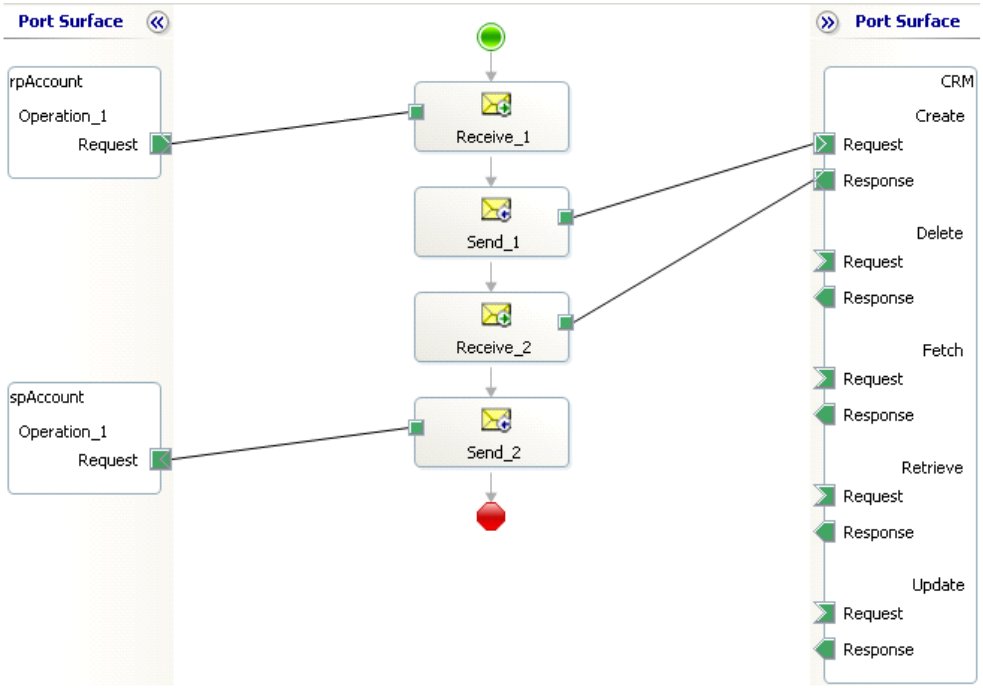
Create

The Create method is used to create entity records.

Request Messagetype	Response Messagetype
Contact	Contact

1. Create an orchestration looking like this:



2. Create an XML message file to create a new record.
   For example: contact_create.xml

```
<contact xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/contact>
  <firstname>Jim</firstname>
  <fullname>Jim T.</fullname>
  <lastname>Kirk</lastname>
  <mobilephone>+49 171 123456</mobilephone>
</contact>
```

Attention:
Take care of the namespace. It has to be the same as given in the schema!

3. Copy the file into the input folder of the receive port ***Contact_Create***, e.g. *C:\FileDrop\Contact\Create\In*.

4. After a short while, an XML file will be appear in the output folder of the send port ***Contact_Create***, e.g. *C:\FileDrop\Contact\Create\Out*. The content should look something like this:

```
<?xml version="1.0" encoding="utf-8" ?>
<contact xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/contact>
  <firstname>Jim</firstname>
  <fullname>Jim T.</fullname>
  <lastname>Kirk</lastname>
  <mobilephone>01234</mobilephone>
  <contactid>733ef35b-1947-db11-acc2-0050da4615a6</contactid>
</contact>
```

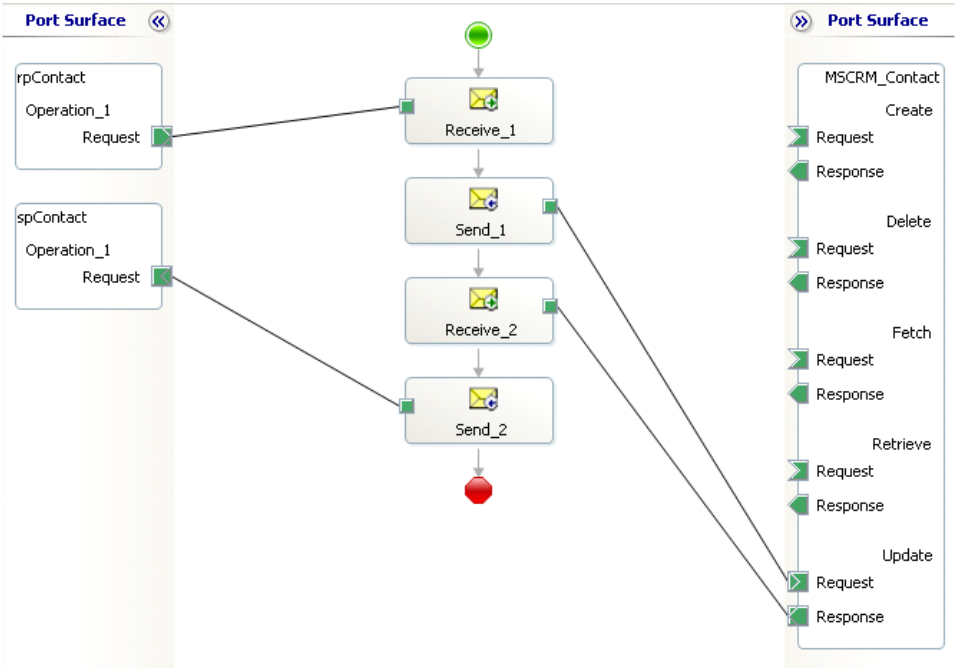
5. The CRM system has created the record and provides the **contactid**. This can be processed directly in the orchestration.

Update

The method Update is used for updating entity records.

Request Messagetype	Response Messagetype
Contact	Contact

1. Create an orchestration looking like this:



2. Create an XML message file to update an existing record.
   For example: contact_update.xml

```
<contact xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/contact>
  <firstname>Jim</firstname>
  <fullname>Jim Tiberius</fullname>
  <lastname>Kirk II</lastname>
  <mobilephone>01234</mobilephone>
  <contactid>733ef35b-1947-db11-acc2-0050da4615a6</contactid>
</contact>
```

Attention:
Take care of the **contactid**, so the CRM system can find the desired record.

3. Copy the file into the input folder of the receive port ***Contact_Update***, e.g. *C:\FileDrop\Contact\Update\In*.

4. After a short while, an XML file will appear in the output folder of the send port ***Contact_Update***, e.g. *C:\FileDrop\Contact\Update\Out*. The content should look something like this:

```
<contact xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/contact>
  <firstname>Jim</firstname>
  <fullname>Jim Tiberius</fullname>
  <lastname>Kirk II</lastname>
  <mobilephone>01234</mobilephone>
  <contactid>733ef35b-1947-db11-acc2-0050da4615a6</contactid>
</contact>
```

5. The CRM system has updated the record and provides the same message as response.

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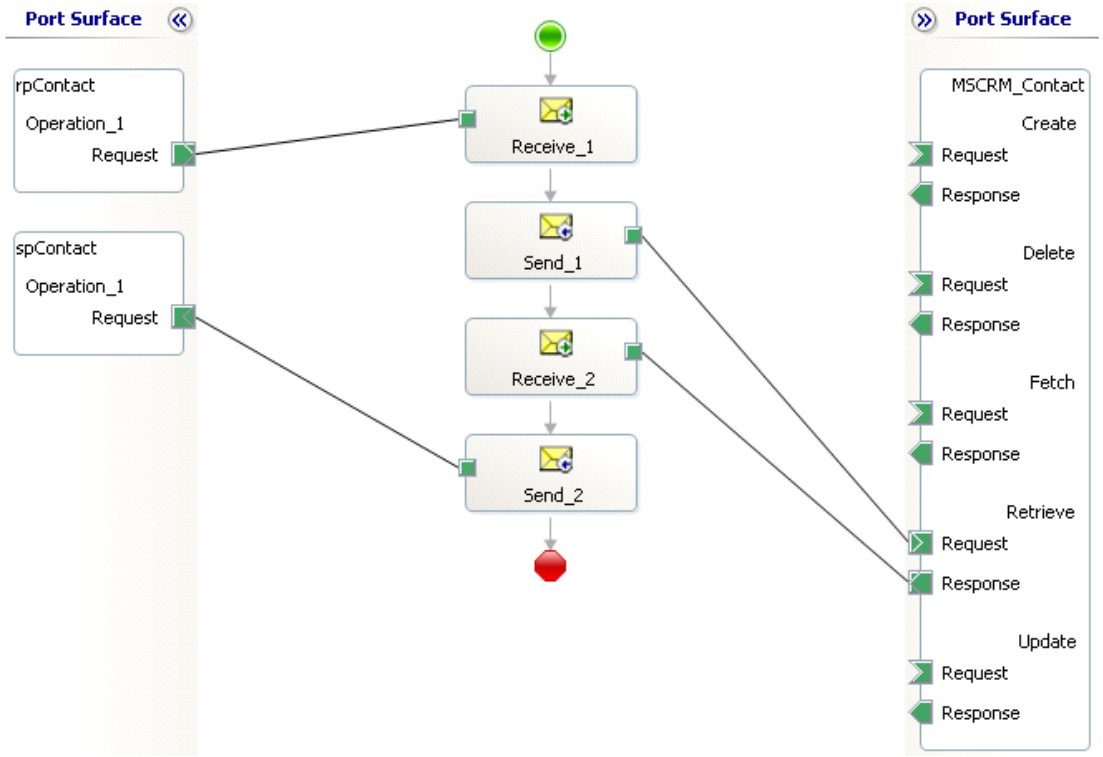
Retrieve

The Retrieve method is used for retrieving a single entity record based on the unique identifier.

Request Messagetype	Response Messagetype
Contact	Contact

1. Create an orchestration, that looks like this:



2. Create an XML message file to retrieve a single record.
   For example: contact_retrieve.xml

```
<contact xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/contact>
  <contactid>733ef35b-1947-db11-acc2-0050da4615a6</contactid>
</contact>
```

Attention:
Take care of the **contactid**, so the CRM system can find the desired record. The message can also contain further attributes, but the adapter will ignore them.

3. Copy the file into the input folder of the receive port ***Contact_Retrieve***, e.g. *C:\FileDrop\Contact\Retrieve\In*.

4. After a short while, an XML file will appear in the output folder of the send port ***Contact_Retrieve***, e.g. *C:\FileDrop\Contact\Retrieve\Out*. The content should look something like this:

```
<?xml version="1.0" encoding="utf-8" ?>
<contact xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/account">
  <address1_addressid>{607A99B9-AC5A-DB11-ACC2-0050DA4615A6}</address1_addressid>
  <owningbusinessunit>{C4991D79-06EB-DA11-A201-0050DA4615A6}</owningbusinessunit>
  <donotsendmm name="Yes">0</donotsendmm>
  <statecode name="Active" formattedvalue="Active">Active</statecode>
  <statuscode name="Active" formattedvalue="1">1</statuscode>
  <merged name="No">0</merged>
  <createdby dsc="0" name="creator">{CD8E9A9A-9D44-DB11-ACC2-0050DA4615A6}</createdby>
  <contactid>{5F7A99B9-AC5A-DB11-ACC2-0050DA4615A6}</contactid>
  <firstname>James</firstname>
  <fullname>James Kirk</fullname>
  <createdon date="03/08/2011" time="1:19 PM">2007-03-08T13:19:44+02:00</createdon>
  <ownerid type="systemuser" dsc="0" name="owner">{CD8E9A9A-9D44-DB11-ACC2-0050DA4615A6}</ownerid>
  <modifiedon date="03/08/2011" time="1:19 PM">2011-03-08T13:19:44+02:00</modifiedon>
  <mobilephone>01234</mobilephone>
  <modifiedby dsc="0" name="modifier">{CD8E9A9A-9D44-DB11-ACC2-0050DA4615A6}</modifiedby>
  <lastname>Kirk</lastname>
  <address2_addressid>{617A99B9-AC5A-DB11-ACC2-0050DA4615A6}</address2_addressid>
  <participatesinworkflow name="No">0</participatesinworkflow>
  </contact>
```

5. The CRM system has provided the record with all filled attributes and the data could now be processed in the orchestration.

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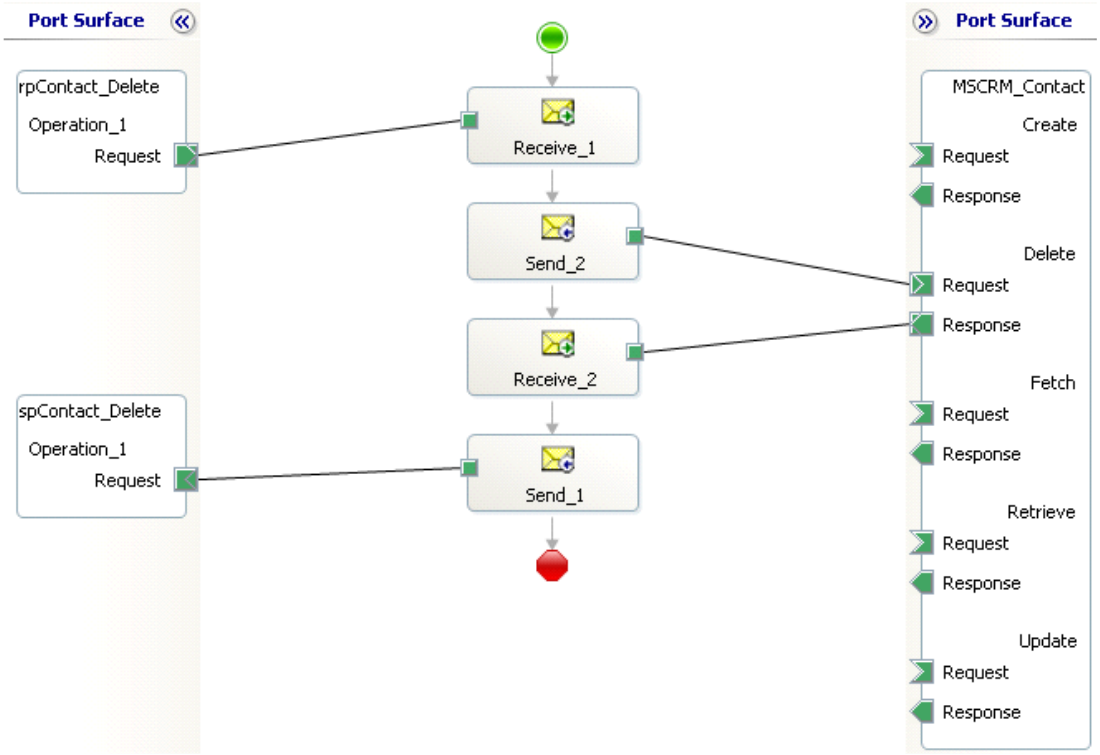
Delete

The Delete method is used for deleting an entity record based on the unique identifier.

Request Messagetype	Response Messagetype
Contact	Contact

1. Create an orchestration looking like this:



2. Create an XML message file to delete a single record.
   For example: contact_delete.xml

```
<contact xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/contact>
  <contactid>733ef35b-1947-db11-acc2-0050da4615a6</contactid>
</contact>
```

Attention:
Take care of the **contactid**, so the CRM system can find the desired record. The message can also contain further attributes, but the adapter will ignore them.

3. Copy the file into the input folder of the receive port ***Contact_Delete***, e.g. *C:\FileDrop\Contact\Delete\In*.

4. After a short while, an XML file will appear in the output folder of the send port ***Contact_Delete***, e.g. *C:\FileDrop\Contact\Delete\Out*. The content should look something like this:

```
<?xml version="1.0" encoding="utf-8" ?>
<contact xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/account">
  <address1_addressid>{607A99B9-AC5A-DB11-ACC2-0050DA4615A6}</address1_addressid>
  <owningbusinessunit>{C4991D79-06EB-DA11-A201-0050DA4615A6}</owningbusinessunit>
  <donotsendmm name="Yes">0</donotsendmm>
  <statecode name="Active" formattedvalue="Active">Active</statecode>
  <statuscode name="Active" formattedvalue="1">1</statuscode>
  <merged name="No">0</merged>
  <createdby dsc="0" name="creator">{CD8E9A9A-9D44-DB11-ACC2-0050DA4615A6}</createdby>
  <firstname>James</firstname>
  <fullname>James Kirk</fullname>
  <createdon date="03/08/2011" time="1:19 PM">2007-03-08T13:19:44+02:00</createdon>
  <ownerid type="systemuser" dsc="0" name="owner">{CD8E9A9A-9D44-DB11-ACC2-0050DA4615A6}</ownerid>
  <modifiedon date="03/08/2011" time="1:19 PM">2011-03-08T13:19:44+02:00</modifiedon>
  <mobilephone>01234</mobilephone>
  <modifiedby dsc="0" name="modifier">{CD8E9A9A-9D44-DB11-ACC2-0050DA4615A6}</modifiedby>
  <lastname>Kirk</lastname>
  <address2_addressid>{617A99B9-AC5A-DB11-ACC2-0050DA4615A6}</address2_addressid>
  <participatesinworkflow name="No">0</participatesinworkflow>
  </contact>
```

5. The CRM system has deleted the record and provides the complete record data as response. The contactid is not contained, because the record with this unique identifier doesn't exist anymore.

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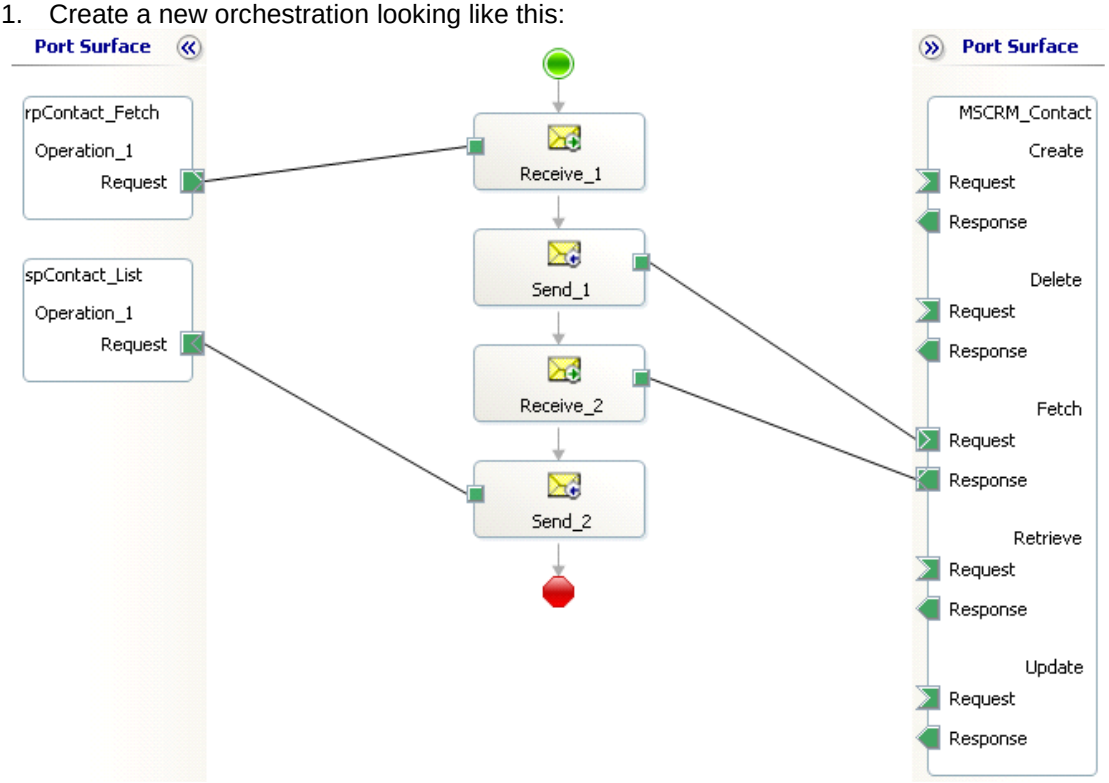
Fetch

The Fetch method is used to search entity records based on several criterias.

Request Messagetype	Response Messagetype
Fetch	ContactList

1. Create a new orchestration looking like this:



2. Create an XML message file to search for one or more records.
   For example: contact_fetch.xml

```
<fetch mapping="logical" xmlns="http://Roedl.BizTalk.Schemas.MSCRM/fetch">
   <entity name="contact">
      <all-attributes />
      <filter type="or">
         <condition attribute="firstname" operator="eq" value="James" />
      </filter>
   </entity>
</fetch>
```

Attention:
Take care of the namespace. It has to be the same as given in the entity schema, except “contact” instead of “fetch”

3. Copy the file into the input folder of the receive port ***Contact_Fetch***, e.g. *C:\FileDrop\Contact\Fetch\In*.

4. After a short while, an XML file will appear in the output folder of the send port ***Contact_Fetch***, e.g. *C:\FileDrop\Contact\Fetch\Out*. The content should look something like this:

```
<?xml version="1.0" encoding="utf-8"?>
<contactList xmlns="http://Roedl.BizTalk.Schemas.MSCRM/contactList">
  <count>2</count>
  <contact xmlns="http://Roedl.BizTalk.Schemas.MSCRM/contact">
    <contactid>{5F7A99B9-AC5A-DB11-ACC2-0050DA4615A6}</contactid>
    <owningbusinessunit>{C4991D79-06EB-DA11-A201-0050DA4615A6}</owningbusinessunit>
    <participatesinworkflow name="No">0</participatesinworkflow>
    <firstname>James</firstname>
    <lastname>Kirk</lastname>
    <fullname>James Kirk</fullname>
    <createdon time="1:19 PM" date="03/08/2011">2011-03-08T13:19:44+02:00</createdon>
    <createdby name="creator" dsc="0">{CD8E9A9A-9D44-DB11-ACC2-0050DA4615A6}</createdby>
    <modifiedon time="1:32 PM" date="03/08/2011">2011-03-08T13:32:44+02:00</modifiedon>
    <modifiedby name="modifier" dsc="0">{4CACBF89-91EC-DA11-900D-0050DA4615A6}</modifiedby>
    <mobilephone>01234</mobilephone>
    <statecode name="Active" formattedvalue="0">0</statecode>
    <statuscode name="Active" formattedvalue="1">1</statuscode>
    <address1_addressid>{607A99B9-AC5A-DB11-ACC2-0050DA4615A6}</address1_addressid>
    <address2_addressid>{617A99B9-AC5A-DB11-ACC2-0050DA4615A6}</address2_addressid>
    <ownerid type="8" name="owner" dsc="0">{CD8E9A9A-9D44-DB11-ACC2-0050DA4615A6}</ownerid>
    <merged name="No">0</merged>
    <donotsendmm name="Yes">0</donotsendmm>
  </contact>
  <contact xmlns="http://crm.logisma.de/mscrmservices/2007/crmservice.asmx-contact">
    <contactid>{D9C68592-AE5A-DB11-ACC2-0050DA4615A6}</contactid>
    <owningbusinessunit>{C4991D79-06EB-DA11-A201-0050DA4615A6}</owningbusinessunit>
    <participatesinworkflow name="No">0</participatesinworkflow>
    <firstname>James</firstname>
    <lastname>Belushi</lastname>
    <fullname>James Belushi</fullname>
    <donotphone name="Allow">0</donotphone>
    <donotfax name="Allow">0</donotfax>
    <donotemail name="Allow">0</donotemail>
    <donotpostalmail name="Allow">0</donotpostalmail>
    <donotbulkemail name="Allow">0</donotbulkemail>
    <createdon time="1:32 PM" date="03/08/2011">2011-03-08T13:32:57+02:00</createdon>
    <creditonhold name="No">0</creditonhold>
    <createdby name="creator" dsc="0">{4CACBF89-91EC-DA11-900D-0050DA4615A6}</createdby>
    <modifiedon time="1:32 PM" date="03/08/2011">2011-03-08T13:32:57+02:00</modifiedon>
    <modifiedby name="modifier" dsc="0">{4CACBF89-91EC-DA11-900D-0050DA4615A6}</modifiedby>
    <statecode name="Active" formattedvalue="0">0</statecode>
    <statuscode name="Active" formattedvalue="1">1</statuscode>
    <address1_addressid>{DAC68592-AE5A-DB11-ACC2-0050DA4615A6}</address1_addressid>
    <address2_addressid>{DBC68592-AE5A-DB11-ACC2-0050DA4615A6}</address2_addressid>
    <ownerid type="8" name="owner" dsc="0">{4CACBF89-91EC-DA11-900D-0050DA4615A6}</ownerid>
    <merged name="No">0</merged>
    <donotsendmm name="Yes">0</donotsendmm>
  </contact>
</contactList>
```

5. The CRM system has founded some records based on the given criteria and provides these data via the ***ContactList***. These contact records may now be transformed to ***Contact*** objects.

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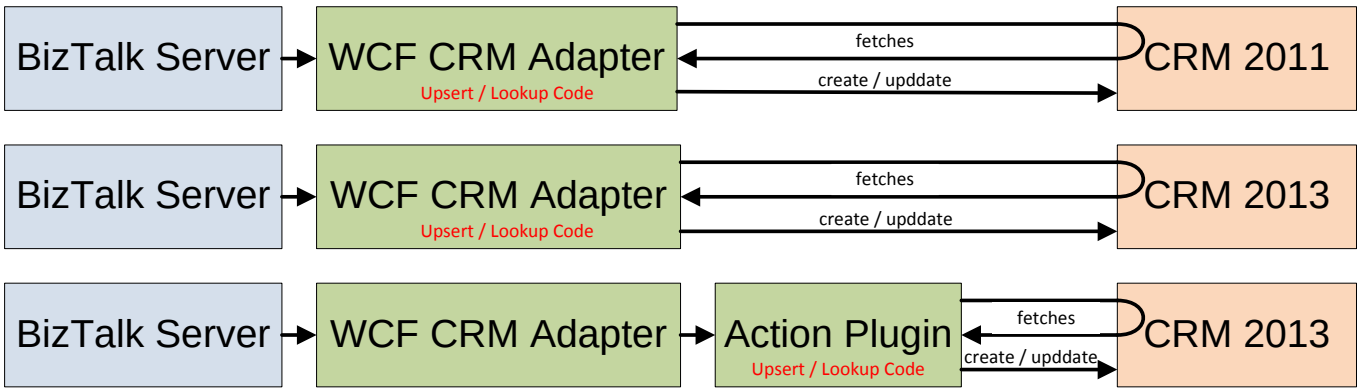
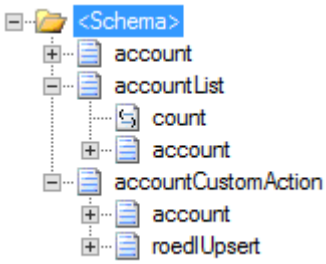
New Upsert and Lookup functionalities

The new functionality is running in Microsoft Dynamics CRM 2011 and 2013 Systems. For 3013 Systems, we write a special action method, which call al the fetch functions direct on the CRM System.
The Adapter recognizes, if the CRM System is a 2011 or a 2013 System. If the CRM System is a 2013 System, the Adapter also recognize, if the Roedl Action Plugin is installed.
If the Roedl Action Plugin is installed, all fetch statements for Update and Lookups are running on the CRM Server.



For the new functionalities, we need additional information in the schemas.
Especialy for that, we create a new Schema type for the adapter.
The schema type ist ***entity*CustomAction.**
This schema includes the entity schema and the roedlUpsert schema.
For the UPSERT functionality, this new ***entity*CustomAction** have to be send with the adapter.
In the virtual send port, we need for that a new action “upsert”.

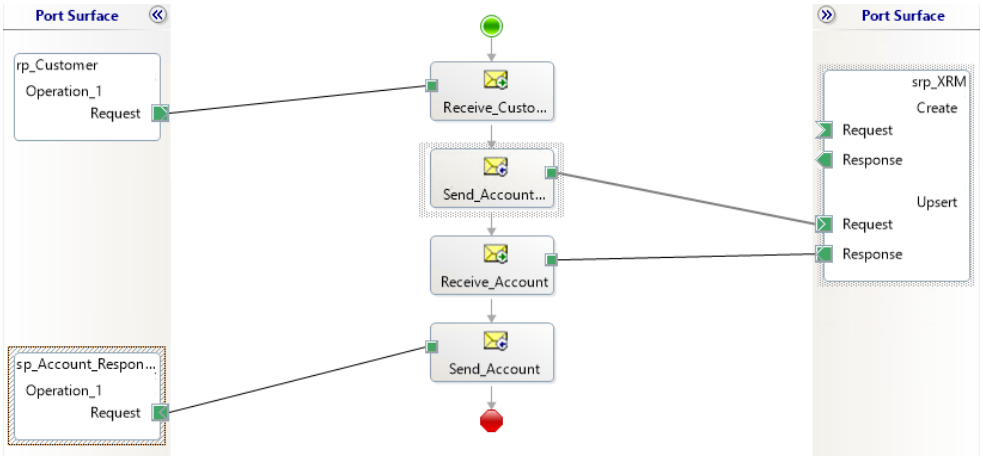


Upsert

The Upsert method is a new feature to create AND update entity records.

Request Messagetype	Response Messagetype
accountCustomAction	account

6. Create an orchestration looking like this:



7. Create an XML message file to create a new record.
   For example: contact_create.xml

```
ns0:accountCustomAction xmlns:ns0="http://Roedl.BizTalk.Schemas.MSCRM/account">
  <ns0:account>
    <ns0:accountnumber>123456</ns0:accountnumber>
    <ns0:address1_city>Nuremberg</ns0:address1_city>
    <ns0:address1_country>Germany</ns0:address1_country>
    <ns0:address1_line1>Mainstreet 1</ns0:address1_line1>
    <ns0:address1_postalcode>91000</ns0:address1_postalcode>
    <ns0:address1_telephone1>+49 123456</ns0:address1_telephone1>
    <ns0:emailaddress1>JTK@Space.com</ns0:emailaddress1>
    <ns0:name>James T. Kirk</ns0:name>
  </ns0:account>
  <ns0:roedlUpsert>
    <ns0:condition>accountnumber='123456'</ns0:condition>
  </ns0:roedlUpsert>
</ns0:accountCustomAction>
```

Attention:
Take care of the namespace. It has to be the same as given in the schema!

8. Copy the file into the input folder of the receive port ***Account_Create***, e.g. *C:\FileDrop\Account\Create\In*.

9. After a short while, an XML file will be appear in the output folder of the send port ***Account_Create***, e.g. *C:\FileDrop\Account\Create\Out*. The content should look something like this:

```
<ns0:account xmlns:ns0="http://Roedl.BizTalk.Schemas.MSCRM/account">
  <ns0:accountnumber>123456</ns0:accountnumber>
  <ns0:address1_city>Nuremberg</ns0:address1_city>
  <ns0:address1_country>Germany</ns0:address1_country>
  <ns0:address1_line1>Mainstreet 1</ns0:address1_line1>
  <ns0:address1_postalcode>91000</ns0:address1_postalcode>
  <ns0:address1_telephone1>+49 123456</ns0:address1_telephone1>
  <ns0:emailaddress1>JTK@Space.com</ns0:emailaddress1>
  <ns0:name>James T. Kirk</ns0:name>
  <ns0:accountid>c126574a-8ccd-e311-93f3-00155d1a5a6b</ns0:accountid>
</ns0:account>
```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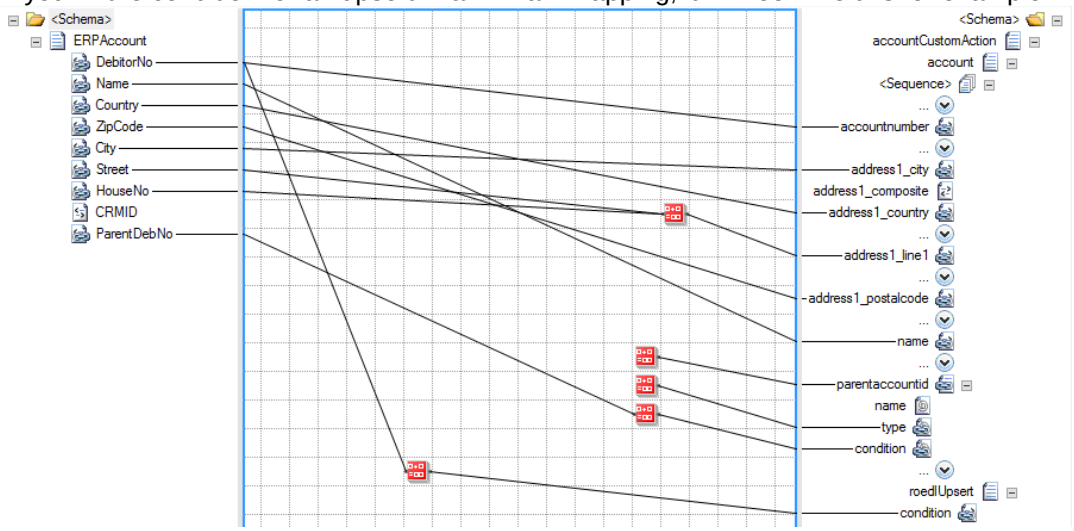
10. The CRM system has created the record and provides the **accountid**. This can be processed directly in the orchestration.
11. Now change the street in the input message

```
ns0:accountCustomAction xmlns:ns0="http://Roedl.BizTalk.Schemas.MSCRM/account">
  <ns0:account>
    <ns0:accountnumber>123456</ns0:accountnumber>
    <ns0:address1_city>Nuremberg</ns0:address1_city>
    <ns0:address1_country>Germany</ns0:address1_country>
    <ns0:address1_line1>Space Place 1</ns0:address1_line1>
    <ns0:address1_postalcode>91000</ns0:address1_postalcode>
    <ns0:address1_telephone1>+49 123456</ns0:address1_telephone1>
    <ns0:emailaddress1>JTK@Space.com</ns0:emailaddress1>
    <ns0:name>James T. Kirk</ns0:name>
  </ns0:account>
  <ns0:roedlUpsert>
    <ns0:condition>accountnumber='123456'</ns0:condition>
  </ns0:roedlUpsert>
</ns0:accountCustomAction>
```

The condtition attribute inside the ‘roedlUpsert’ element allows to create a condition (like a fetch) to describe the key for finding the related object. In this examble, the adapter fetch in the accounts for an accountnumber with the value ‘123456’. If the condition is not valid (results more than one) the adapter throw an error. If the adapter finds exactly one entity, the adapter will update this entity. And if the adapter find no entity, it will create a new entity.

If you fill the condition for an upsert in a BizTalk mapping, it will look like this for example:



12. Copy the file into the input folder of the receive port ***Account_Create***, e.g. *C:\FileDrop\Account\Create\In*.

13. After a short while, an XML file will be appear in the output folder of the send port ***Account_Create***, e.g. *C:\FileDrop\Account\Create\Out*. The content should look something like this:

```
<ns0:account xmlns:ns0="http://Roedl.BizTalk.Schemas.MSCRM/account">
  <ns0:accountnumber>123456</ns0:accountnumber>
  <ns0:address1_city>Nuremberg</ns0:address1_city>
  <ns0:address1_country>Germany</ns0:address1_country>
  <ns0:address1_line1>Space Place 1</ns0:address1_line1>
  <ns0:address1_postalcode>91000</ns0:address1_postalcode>
  <ns0:address1_telephone1>+49 123456</ns0:address1_telephone1>
  <ns0:emailaddress1>JTK@Space.com</ns0:emailaddress1>
  <ns0:name>James T. Kirk</ns0:name>
  <ns0:accountid>c126574a-8ccd-e311-93f3-00155d1a5a6b</ns0:accountid>
</ns0:account>
```

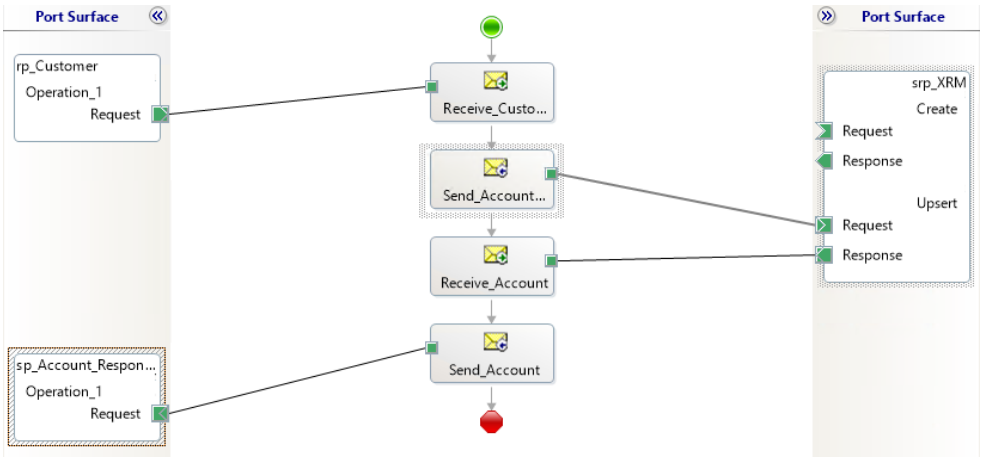
14. The accounted is the same, because there was an update in CRM!

Lookup functionality

The lookup functionality is also a new feature and is only working with the *entity*CustomAction (etc. accountCustomAction). **Lookups are also working in the *entity*Custom message for inserts and updates. Not only in the *entity*CustomAction!**

Request Messagetype	Response Messagetype
accountCustomAction	account

15. Create an orchestration looking like this:



16. Create an XML message file to create a new record.
    For example: contact_create.xml

```
ns0:accountCustomAction xmlns:ns0="http://Roedl.BizTalk.Schemas.MSCRM/account">
  <ns0:account>
    <ns0:accountnumber>123456</ns0:accountnumber>
    <ns0:address1_city>Nuremberg</ns0:address1_city>
    <ns0:address1_country>Germany</ns0:address1_country>
    <ns0:address1_line1>Mainstreet 1</ns0:address1_line1>
    <ns0:address1_postalcode>91000</ns0:address1_postalcode>
    <ns0:address1_telephone1>+49 123456</ns0:address1_telephone1>
    <ns0:emailaddress1>JTK@Space.com</ns0:emailaddress1>
    <ns0:name>James T. Kirk</ns0:name>
    <ns0:parentaccountid type="account" ignore="true" condition="accountnumber='654987'"/>
  </ns0:account>
  <ns0:roedlUpsert>
    <ns0:condition>accountnumber='123456'</ns0:condition>
  </ns0:roedlUpsert>
</ns0:accountCustomAction>
```

The condtition attribute in all Lookups allows to create a condition (like a fetch) to describe the key for finding the related object. In this examble, the adapter fetch in the accounts for an accountnumber with the value ‘654987’ in the attribute ‘accountnumber’. If the condition is not valid (e.g. result nothing or more than one) the adapter throw an error. But if the attribute ‘ignore’ is on true, the lookup ‘parentaccountid’ will not be filled and no exception happened.

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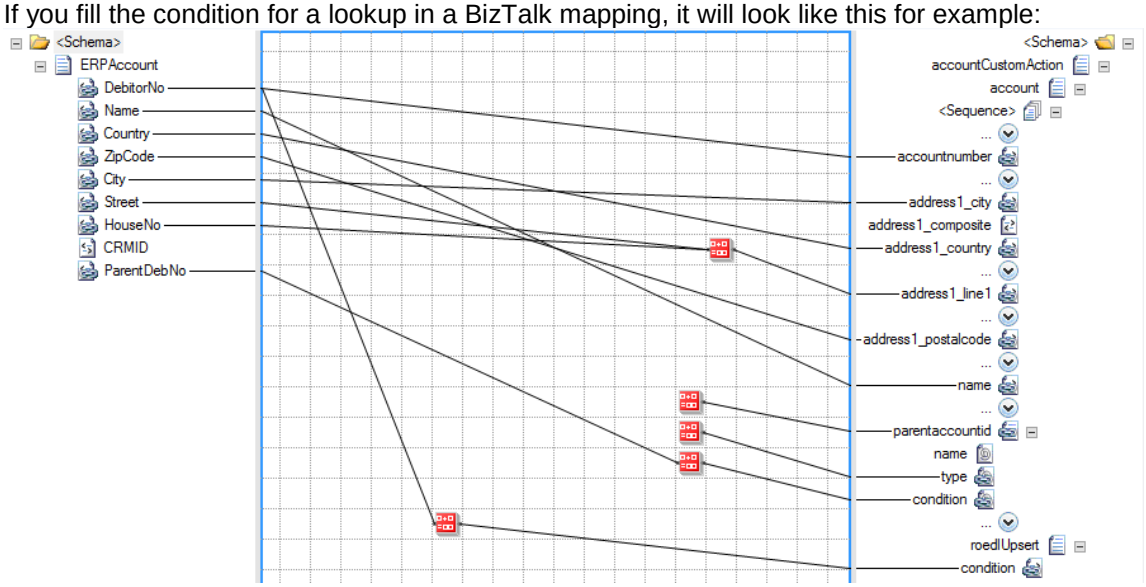
If you fill the condition for a lookup in a BizTalk mapping, it will look like this for example:



Attention:
Take care of the namespace. It has to be the same as given in the schema!

17. Copy the file into the input folder of the receive port ***Account_Create***, e.g. *C:\FileDrop\Account\Create\In*.

18. After a short while, an XML file will be appear in the output folder of the send port ***Account_Create***, e.g. *C:\FileDrop\Account\Create\Out*. The content should look something like this:

```
<ns0:account xmlns:ns0="http://Roedl.BizTalk.Schemas.MSCRM/account">
  <ns0:accountnumber>123456</ns0:accountnumber>
  <ns0:address1_city>Nuremberg</ns0:address1_city>
  <ns0:address1_country>Germany</ns0:address1_country>
  <ns0:address1_line1>Mainstreet 1</ns0:address1_line1>
  <ns0:address1_postalcode>91000</ns0:address1_postalcode>
  <ns0:address1_telephone1>+49 123456</ns0:address1_telephone1>
  <ns0:emailaddress1>JTK@Space.com</ns0:emailaddress1>
  <ns0:name>James T. Kirk</ns0:name>
  <ns0:parentaccountid name="" type="account">c126574a-8ccd-e311-93f3-00155d1a5a6b</ns0:parentaccountid>
  <ns0:accountid>c126574a-8ccd-e311-93f3-00155d1a5a6b</ns0:accountid>
</ns0:account>
```

19. The CRM system has created the record and provides the **accountid**. This can be processed directly in the orchestration. The parentaccountid is automatically included.

Import Account

A small project that demonstrates the performance of the adapter **before the upsert statement exist**. To be reasonable, it will be assumed, that the customer records from the external application are already available as individual XML files.
After receiving the Account message, a Fetch message will be used to establish whether the Account in the CRM system already exists. The primary key for finding the customer is the customer number. In our case, it is the **accountnumber**.
Therefore, the Account message has to be mapped to a Fetch message. The Fetch Request should look something like this:

```
<ns0:fetch mapping="logical" xmlns ="http://Roedl.BizTalk.Schemas.MSCRM/Fetch">
   <ns0:entity name="account">
      <ns0:all-attributes />
      <ns0:filter type="and">
         <ns0:condition attribute="accountnumber" operator="eq" value="4711" />
      </ns0:filter>
   </ns0:entity>
</ns0:fetch>
```

The response message will be a message of type **AccountList**.
In the subsequent Decide shape, you will have to evaluate the value of the element ***count***:

count value	Consequence
0	No Account with this number was found. A new Account will be created.
1	One Account with this number was found. The Account will be updated.
>1	More than one Account with this number was found. This is possible, because there are no unique indexes for this field in MS CRM. We won't deal with this case in the example.

In the Create condition of the Decide shape the following code should be used:

```
System.Convert.ToInt32(msgAccountList.count) == 0
```

In the case of a Create, we can now pass the Account message directly to the Create function. If the record should be updated, we need to include the AccountID in the message. In our example this happens by using a mapping. After that, the Update function can be called with the newly generated Account message.

Since the *R&P MS CRM WCF Adapter for MS BizTalk* is bidirectional, finally, the respective responses of the CRM system will be sent to each send port.

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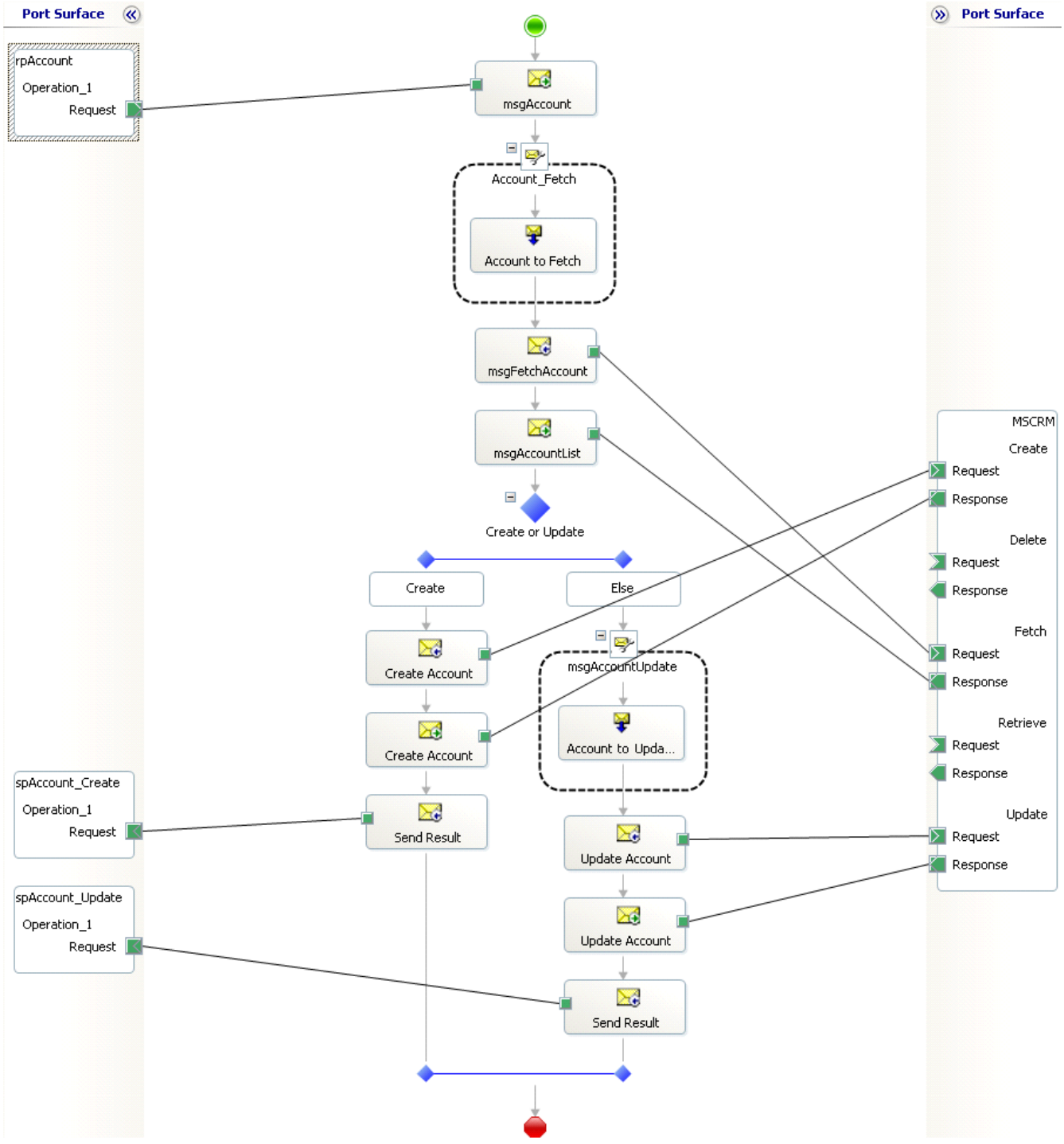
1. Create a new orchestration looking like this:



2. Create an XML message file to create a new record.
   For example: contact_create.xml

```
<?xml version="1.0" encoding="utf-8"?>
  <account xmlns="http://Roedl.BizTalk.Schemas.MSCRM/account">
    <accountnumber>Roedl Consulting AG</accountnumber>
    <name>Roedl Consulting AG</name>
    <address1_name> Roedl Consulting AG</address1_name>
    <address1_line1>Laubanger</address1_line1>
    <address1_line2>23</address1_line2>
    <address1_city>Bamberg</address1_city>
    <address1_country>D</address1_country>
    <address1_postalcode>96052</address1_postalcode>
  </account>
```

Attention:
Take care of the namespace. It has to be the same as given in the Contact schema.

3. Copy the file into the input folder of the receive port ***account_Create***, e.g. *C:\FileDrop\Account\Create\In*.

4. After a short while, an XML file will appear in the output folder of the send port ***account_Create***, e.g. *C:\FileDrop\Account\Create\Out*. The content should look something like this:

```
<?xml version="1.0" encoding="utf-8"?>
  <account xmlns="http://Roedl.BizTalk.Schemas.MSCRM/account">
    <accountnumber>Roedl Consulting AG</accountnumber>
    <name>Roedl Consulting AG</name>
    <address1_name> Roedl Consulting AG</address1_name>
    <address1_line1>Laubanger</address1_line1>
    <address1_line2>23</address1_line2>
    <address1_city>Bamberg</address1_city>
    <address1_country>D</address1_country>
    <address1_postalcode>96052</address1_postalcode>
    <accountid>733ef35b-1947-db11-acc2-0050da4615a6</accountid>
  </account>
```

5. The CRM system has created the record and provides the **contactid**. This can be processed directly in the orchestration.

6. Modify the message, for example as described below, and send it to the input folder of the receive port ***Account_Create***, e.g. *C:\FileDrop\Account\Create\In*.

```
<?xml version="1.0" encoding="utf-8"?>
  <account xmlns="http://Roedl.BizTalk.Schemas.MSCRM/account">
    <accountnumber>Roedl IT Consulting GmbH</accountnumber>
    <name>Roedl Consulting IT Consulting GmbH</name>
    <address1_name> Roedl Consulting AG</address1_name>
    <address1_line1>Laubanger</address1_line1>
    <address1_line2>23</address1_line2>
    <address1_city>Bamberg</address1_city>
    <address1_country>D</address1_country>
    <address1_postalcode>96052</address1_postalcode>
    <accountid>733ef35b-1947-db11-acc2-0050da4615a6</accountid>
  </account>
```

7. After a short while, an XML file will appear in the output folder of the send port ***account_Create***, e.g. *C:\FileDrop\Account\Create\Out*.

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Supported Functions (28.11.2011)

CRM-Methods

- AddItemCampaign
- AddItemCampaignActivity
- AddMemberList
- AddProductToKit
- Assign
- CalculateActualValueOpportunity 1.3.26
- CalculateTotalTimeIncident 1.3.26
- CloseIncident 1.3.26
- CopyCampaign 1.3.26
- CopyDynamicListToStatic 1.3.26
- CopyMembersList 1.3.26
- CancelContract
- CancelSalesOrder
- CloseQuote
- CheckIncomingEmail
- CheckPromoteEmail
- ConvertKitToProduct
- ConvertProductToKit
- DeleteAuditData 1.3.26
- DeprovisionLanguage 1.3.26
- ExecuteWorkflow
- FulfillSalesOrder
- GetInvoiceProductsFromOpportunity 1.3.26
- GetTrackingTokenEmail
- GetQuantityDecimal
- GetReportHistoryLimit 1.3.26
- IsValidStateTransition 1.3.26
- InstallSampleData
- LockInvoicePricing
- LockSalesOrderPricing
- LoseOpportunity
- PublishAllXml
- PublishXml
- PublishDuplicateRule 1.3.26
- ProvisionLanguage 1.3.26
- ReassignObjectsOwner
- ReassignObjectsSystemUser
- Recalculate
- RemoveItemCampaign
- RemoveItemCampaignActivity
- RemoveMemberList
- RemoveParent
- RemovePrivilegeRole
- RemoveProductFromKit
- RemoveSolutionComponent 1.3.26
- RetrieveDeploymentLicenseType 1.3.26
- RetrieveExchangeRate
- RetrieveInstalledLanguagePacks
- RetrieveInstalledLanguagePackVersion
- RetrieveLicenseInfo
- RetrieveVersion
- SendEmail
- SendFax
- SetParentBusinessUnit
- SetParentSystemUser
- SetState
- UninstallSampleData
- UnlockInvoicePricing
- UnlockSalesOrderPricing
- WhoAmI
- WinOpportunity

XRM-Methods

- Associate
- CanBeReferenced
- CanBeReferencing
- CanManyToMany
- DeleteAttribute
- DeleteEntity
- DeleteOptionSet
- DeleteOptionValue
- InsertOptionValue
- UpdateOptionValue
- Disassociate

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Contact:
Roedl Consulting AG
Laubanger 23
96052 Bamberg
Germany
fon: ++49 951 96619 0
fax: ++49 951 96619 11
mail: bamberg@roedl.de
web: http://www.roedl.com/integration

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